

QL
I
.R454
NH

de la
SOCIÉTÉ SUISSE DE ZOOLOGIE
et du
MUSÉUM D'HISTOIRE NATURELLE
de la Ville de Genève

tome 120
fascicule 1
2013

SWISS JOURNAL OF ZOOLOGY
REVUE SUISSE DE ZOOLOGIE

REVUE SUISSE DE ZOOLOGIE

TOME 120—FASCICULE 1

Publication subventionnée par:

ACADEMIE SUISSE DES SCIENCES NATURELLES (SCNAT)
VILLE DE GENÈVE
SOCIÉTÉ SUISSE DE ZOOLOGIE

Comité de rédaction

JACQUES AYER

Directeur du Muséum d'histoire naturelle de Genève

ALICE CIBOIS, PETER SCHUCHERT

Chargés de recherche au Muséum d'histoire naturelle de Genève

Comité de lecture

A. Cibois (oiseaux), G. Cuccodoro (coléoptères), S. Fisch-Muller (poissons),
B. Merz (insectes, excl. coléoptères), J. Mariaux (invertébrés excl. arthropodes),
M. Ruedi (mammifères), A. Schmitz (amphibiens, reptiles), P. Schwendinger
(arthropodes excl. insectes).

Le comité soumet chaque manuscrit pour évaluation à des experts d'institutions suisses ou étrangères selon le sujet étudié.

La préférence sera donnée aux travaux concernant les domaines suivants: taxonomie, systématique, faunistique, phylogénie, évolution, morphologie et anatomie comparée.

Administration

MUSÉUM D'HISTOIRE NATURELLE

1211 GENÈVE 6

Internet: <http://www.ville-ge.ch/musinfo/mhng/page/rsz.htm>

PRIX DE L'ABONNEMENT:

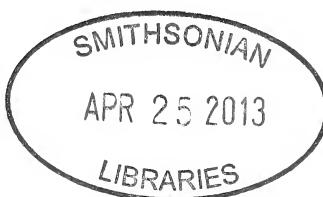
SUISSE Fr. 225.—

UNION POSTALE Fr. 250.—
(en francs suisses)

Les demandes d'abonnement doivent être adressées
à la rédaction de la *Revue suisse de Zoologie*,
Muséum d'histoire naturelle, C.P. 6434, CH-1211 Genève 6, Suisse

REVUE SUISSE DE ZOOLOGIE

SWISS JOURNAL OF ZOOLOGY



ANNALES

de la
SOCIÉTÉ SUISSE DE ZOOLOGIE
et du
MUSÉUM D'HISTOIRE NATURELLE
de la Ville de Genève

tome 120
fascicule 1
2013

REVUE SUISSE DE ZOOLOGIE

TOME 120—FASCICULE 1

Publication subventionnée par:

ACADEMIE SUISSE DES SCIENCES NATURELLES (SCNAT)
VILLE DE GENÈVE
SOCIÉTÉ SUISSE DE ZOOLOGIE

Comité de rédaction

JACQUES AYER

Directeur du Muséum d'histoire naturelle de Genève

ALICE CIBOIS, PETER SCHUCHERT

Chargés de recherche au Muséum d'histoire naturelle de Genève

Comité de lecture

A. Cibois (oiseaux), G. Cuccodoro (coléoptères), S. Fisch-Muller (poissons),
B. Merz (insectes, excl. coléoptères), J. Mariaux (invertébrés excl. arthropodes),
M. Ruedi (mammifères), A. Schmitz (amphibiens, reptiles), P. Schwendinger
(arthropodes excl. insectes).

Le comité soumet chaque manuscrit pour évaluation à des experts d'institutions suisses ou étrangères selon le sujet étudié.

La préférence sera donnée aux travaux concernant les domaines suivants: taxonomie, systématique, faunistique, phylogénie, évolution, morphologie et anatomie comparée.

Administration

MUSÉUM D'HISTOIRE NATURELLE
1211 GENÈVE 6

Internet: <http://www.ville-ge.ch/musinfo/mhng/page/rsz.htm>

PRIX DE L'ABONNEMENT:

SUISSE Fr. 225.—

UNION POSTALE Fr. 250.—

(en francs suisses)

Les demandes d'abonnement doivent être adressées
à la rédaction de la *Revue suisse de Zoologie*,
Muséum d'histoire naturelle, C.P. 6434, CH-1211 Genève 6, Suisse

A new species of *Neotroglia* from Brazilian caves (Psocodea: ‘Psocoptera’: Prionoglarididae)

Charles LIENHARD¹ & Rodrigo L. FERREIRA²

¹ Muséum d'histoire naturelle, c. p. 6434, CH-1211 Genève 6, Switzerland.

Corresponding author. E-mail: charleslienhard@bluewin.ch

² Universidade Federal de Lavras, Departamento de Biologia (Zoologia), CP. 3037, CEP. 37200-000 Lavras (MG), Brazil.

A new species of *Neotroglia* from Brazilian caves (Psocodea: ‘Psocoptera’: Prionoglarididae). – The recently described Brazilian genus *Neotroglia* Lienhard previously consisted of three cave-dwelling species, one from each state, Minas Gerais, Tocantins and Bahia. A fourth species, *N. curvata* n. spec., is here described from several caves in Bahia State. It is characterized by the structure of the female genitalia, in particular by the shape of the gynosome, a penis-like, probably intromittent organ associated with the spermathecal duct and present in all females of this genus. Some observations on the habitat and the biology of the new species are also presented.

Keywords: Brazil - cave fauna - female genitalia - gynosome - antennal flagellum.

INTRODUCTION

The genus *Neotroglia* Lienhard, 2010 in Lienhard *et al.* (2010) was described for three cave-dwelling species from Brazil belonging to the prionoglarid subfamily Speleketorinae, tribe Sensitibillini. A striking autapomorphy of this genus is the presence, in the female, of a penis-like organ enclosing the distal part of the spermathecal duct. The opening of the latter is situated on the tip of this probably intromittent organ, which was termed gynosome by Lienhard *et al.* (2010). Micromorphological differences of the gynosome are the best diagnostical characters for the females of the three known species, in addition to some other features of female genitalia. The males of these species are difficult to distinguish; their genitalia are simplified and very similar to each other. The species *N. brasiliensis* Lienhard, 2010 in Lienhard *et al.* (2010) and *N. aurora* Lienhard, 2010 in Lienhard *et al.* (2010) are more closely related to each other than to *N. truncata* Lienhard, 2010 in Lienhard *et al.* (2010). The new species of *Neotroglia*, described here, belongs to the group containing the two former species but can be easily distinguished from both of them by some characters of the female subgenital plate and by the characteristically curved posterior part of the gynosome. The recent field work of the junior author enables us to present also some data on the biology of the new species.

MATERIAL AND METHODS

The collection of the type series was performed by hand collecting in four different caves located in the municipalities of Santa Maria da Vitória and São Félix do Coribe (Bahia State, Brazil). These caves were sampled from 9 to 16 May (at the end of the wet season) and from 17 to 22 July (dry season), both in 2011. Temperature and humidity were measured inside each cave with a thermohygrometer data logger located near the areas where the psocids were found. The data loggers measured these values during 10 weeks. In October 2012 some additional material was collected in several caves of the above mentioned municipalities.

Dissection and slide-mounting followed the methods described by Lienhard (1998). The material examined is deposited in the following institutions: Universidade Federal de Lavras, Departamento de Biologia (Coleção de Invertebrados Subterrâneos), Lavras, Brazil (ISLA); Muséum d'histoire naturelle, Geneva, Switzerland (MHNG); Systematic Entomology, Hokkaido University, Sapporo, Japan (SEHU).

The following abbreviations are used in the descriptions: Ant = antenna (length); BL = body length (in alcohol); F = hindfemur (length); f1, f2, etc. = antennal flagellomeres (length); FW = forewing (length); HW = hindwing (length); IO/D = shortest distance between compound eyes divided by longitudinal diameter of compound eye in dorsal view of head; T = hindtibia (length); t1, t2, t3 = tarsomeres of hindtarsus (length, measured from condyle to condyle). Abbreviations of wing veins and cells are used according to Yoshizawa (2005).

TAXONOMY

Neotrogla curvata n. spec.

Figs 1-4

HOLOTYPE: ISLA; ♀; Brazil (Bahia), São Félix do Coribe, cave PEA 380 (BA 042); 21.vii.2011; leg. Simone Soares Salgado.

PARATYPES: ISLA and MHNG; 4♂ (one of them allotype) and 5♀; same data as for holotype. – SEHU; 2♀ (one of them teneral); Brazil (Bahia), São Félix do Coribe, cave PEA 381 (BA 043); 18.vii.2011; leg. Simone Soares Salgado. – ISLA and MHNG; 1♂, 2♀, 2 nymphs (both with damaged abdomen); Brazil (Bahia), São Félix do Coribe, cave PEA 383 (BA 045); 18.vii.2011; leg. Simone Soares Salgado. – MHNG and SEHU; 1♂, 2♀ and 1 nymph (the latter lacking abdomen); Brazil (Bahia), Santa Maria da Vitória, cave PEA 343 (BA 003); 15.v.2011; leg. Simone Soares Salgado.

OTHER MATERIAL: Several additional females, males and nymphs (ISLA and SEHU) were collected in the above mentioned caves or in three other caves situated in these municipalities (caves PEA 341, 342, 378; see Distribution and habitat, below), most of them in October 2012. Some of them were used for rearing, behavioural observations or micromorphological studies of pairs *in copula*.

DIAGNOSIS: Sclerotized area of anterior part of female subgenital plate with arms forming an almost straight transverse band, in middle not separated from posterior part of subgenital plate. Basal half of median lobe of posterior part of subgenital plate with a pair of small, hemispherical, hairy lobes and medially with a bifid, dark brown sclerotization; apical half of this lobe bare, ovaly rounded. Female subgenital plate different in the three other species, in particular sclerotized area of anterior part broadly V-shaped (with opening of the V directed backwards) and

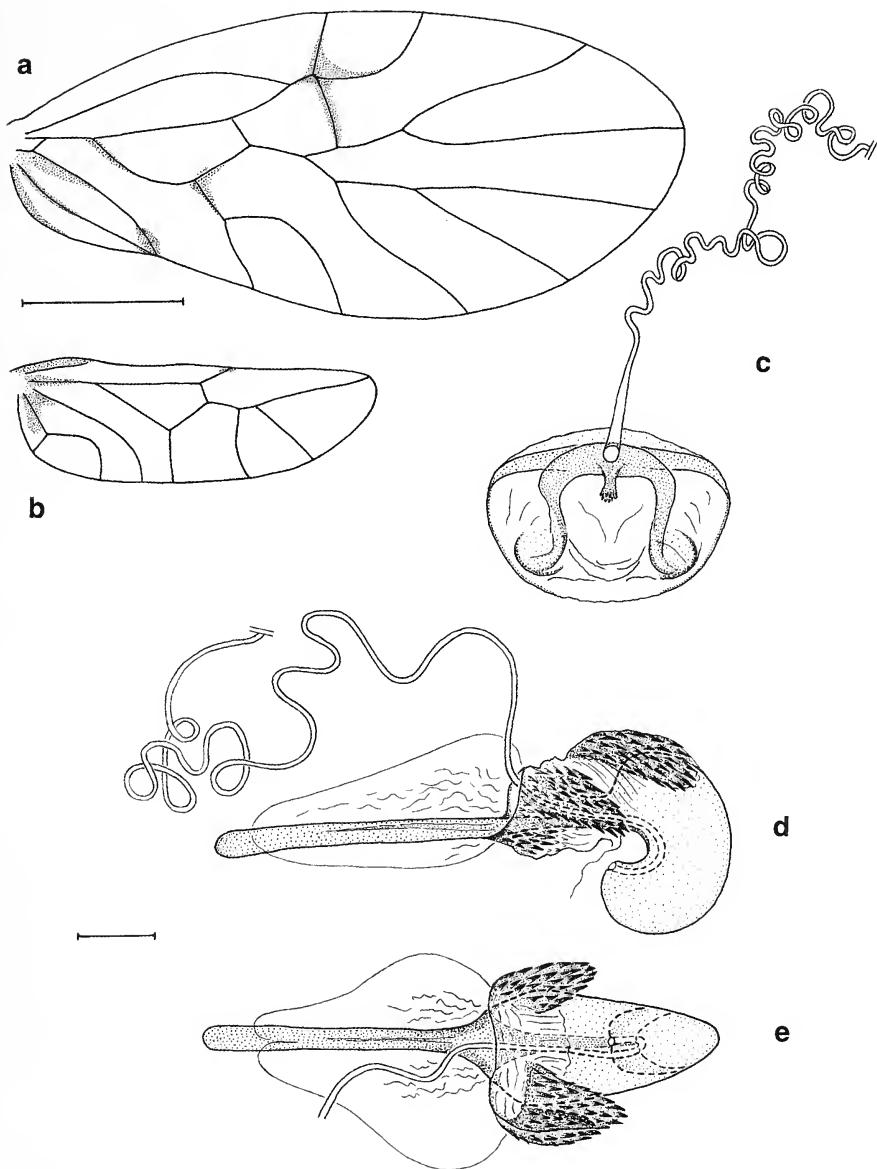


FIG. 1

Neotroglia curvata n. spec., female. (a) Forewing. (b) Hindwing. (c) Proximal part of spermathecal duct with wrinkled plate of wall of spermathecal sac (for complete length of spermathecal duct combine this figure with the next one). (d) Distal part of spermathecal duct and gynosome, lateral view; posterior part at right side of figure. (e) Gynosome, dorsal view. Scale bars: 1.0 mm for a and b; 0.1 mm for c-e.

medially separated from posterior part by an unpigmented area (see Lienhard *et al.*, 2010: figs 1c, 5, 8d). In *N. curvata* n. spec. abdominal sternite anterior to subgenital plate medially with a rugose papillate area, this region smooth in the other species. Posterior sac of gynosome strongly ventrad-bent, having roughly the shape of a short and strongly bent sausage, bearing the opening of the spermathecal duct on the inner side of its broadly rounded distal end. Blister-like zone of gynosome with three strongly denticulate posteriad-directed lobes. Posterior part of gynosome (i. e. posterior sac and blister-like zone) shorter than its sclerotized anterior rod. In the other known species posterior part of gynosome longer than its anterior rod and posterior sac almost straight, only very slightly ventrad-bent in lateral view (see Lienhard *et al.*, 2010: figs 2d, 2f, 6, 8c). The only characters of the male which could possibly be diagnostic are the slightly bilobed posterior thickening of the aedeagal arch and the relatively short but wide papillate channel of the endophallus (see Discussion, below).

DESCRIPTION: Habitus of adults as in Fig. 4a. Colouration and general morphology of males, females and nymphs as described for the type species *Neotrogla brasiliensis* (see Lienhard *et al.*, 2010). In forewing (Fig. 1a) fused portion of Rs and M longer than basal portion of Rs, unpigmented area of pterostigma very slightly opaque. In hindwing (Fig. 1b) M2 slightly concave (bent towards wing base) and R1 distally with a tiny patch of dark pigmentation. Nymphs dorsally with short glandular hairs bearing a minute globular thickening at their tip, similar in shape to the glandular hairs known in some troctomorph psocids (see Lienhard, 1998: fig. 45g). Such hairs also present in nymphs of *N. brasiliensis*, though not mentioned in the original description.

Female terminalia: Epiproct and paraproct as described for *N. brasiliensis* by Lienhard *et al.* (2010). Subgenital plate, ovipositor valvulae and ventrolateral parts of clunium as shown in Fig. 2. Sclerotized area of anterior part of female subgenital plate with arms forming an almost straight transverse band, in middle not separated by an unpigmented area from posterior part of subgenital plate, on anterior margin medially with a short sclerotized longitudinal rod. Abdominal sternite anterior to subgenital plate medially with a rugose area bearing numerous hyaline papillae of irregular shape, mostly more or less lobate (see detail of Fig. 2). Posterior part of subgenital plate with an ovally rounded median lobe, its apical half bare, its basal half on each side with a small, hemispherical, hairy lobe (clearly visible as a proeminence in non-dissected terminalia, in lateral view), this zone medially with a characteristically bifid, dark brown sclerotization (well visible in non-dissected terminalia, in ventral view). Just dorsally of posterior lobe of subgenital plate, and basally covered by the latter, a pair of longitudinal membranous bulges. The foliaceous external gonapophysis with 13-17 short spine-like setae on ventral surface of apical half and a claw-like apical spine (dense dorsal pilosity not shown in Fig. 2, only some internal dorsomarginal setae figured). Gynosome as shown in Fig. 1d, e (length 670-680 µm, holotype and one paratype examined). Its slightly sclerotized posterior sac strongly ventrad-bent, having roughly the shape of a short and strongly bent sausage, bearing the opening of the spermathecal duct (spermapore) on the inner side of its broadly rounded distal end. In resting position tip of gynosome situated dorsally of posterior lobe of subgenital plate (analogous to the situation shown for *N. brasiliensis* in Lienhard *et al.*, 2010: fig. 2d).

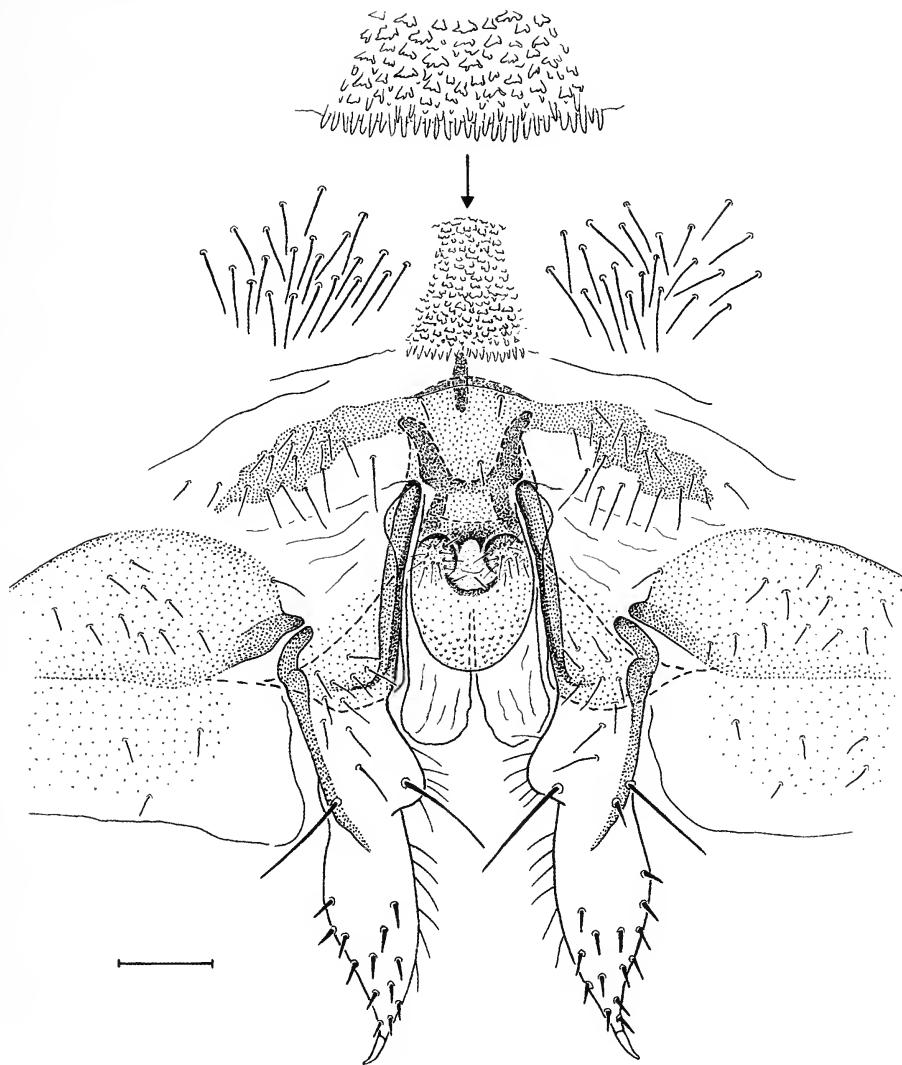


FIG. 2

Neotroglia curvata n. spec., female. Subgenital plate (with detail of posterior part of papillate area), ovipositor valvulae and ventrolateral parts of clunium, ventral view. Scale bar 0.1 mm.

Blister-like zone of gynosome with three posteriad-directed denticulate lobes (i. e. one asymmetrical dorsal lobe directed to the left and a pair of slightly ventrad-directed lateral lobes) and a pair of denticulate ventro-lateral areas (left area visible in Fig. 1d). Posterior part of gynosome (i. e. posterior sac and blister-like zone) shorter than its sclerotized anterior rod. Spermathecal duct long and irregularly curled (complete

length shown in Fig. 1c, d combined). Wall of spermathecal sac thin, bearing numerous small pores and a plate with slightly sclerotized wrinkles at origin of spermathecal duct (Fig. 1c). Spermatophores not observed.

Male terminalia: Epiproct and paraproct as described for *N. brasiliensis* (see Lienhard *et al.*, 2010), hypandrium with 8th sternite distinctly sclerotized, its hind margin slightly bilobate. Phallosome as in Fig. 3; aedeagal arch apically with a slightly bilobed and weakly rugose thickening; on each side of the aedeagal arch a folded membranous bulge situated dorsally of the postero-lateral hypandrial margin. Endophallus on each side with medially bulging membranous structures; in its anterior half, near the distal end of the ejaculatory duct (Fig. 3: de, ductus ejaculatorius) a relatively wide and short longitudinal membranous channel bearing small sclerotized papillae.

MEASUREMENTS: *Female holotype*: BL = 3.3 mm; FW = 4.2 mm; HW = 2.2 mm; F = 1080 µm; T = 1620 µm; t1 = 707 µm; t2 = 150 µm; t3 = 180 µm; Ant (damaged); IO/D = 2.0. – *Male allotype*: BL = 3.5 mm; FW = 4.4 mm; HW = 2.2 mm; F = 1130 µm; T = 1720 µm; t1 = 740 µm; t2 = 146 µm; t3 = 183 µm; Ant (damaged; see Discussion, below); IO/D = 2.2.

ETYMOLOGY: The specific epithet (*curvatus*, -*a*, -*um*) refers to the curved posterior part of the gynosome.

DISTRIBUTION AND HABITAT: At present this species is known from seven caves situated in the municipalities of Santa Maria da Vitória (caves PEA 341, 342, 343) and São Félix do Coribe (caves PEA 378, 380, 381, 383) in Bahia State, Brazil. The limestones of the area are part of the Bambuí speleological province (upper Proterozoic). The caves of both municipalities are predominantly small, their length rarely exceeding 250 m. In Santa Maria da Vitória the caves are very small (with a length of 35 m cave PEA 341 is the biggest in this area). In São Félix do Coribe the caves are bigger and more complex, some of them being labyrinthic (cave PEA 383 has almost 300 m). Three other caves in this area were also sampled, but no *Neotroglas* specimens were found in them. The average temperature in each cave was different during the sampling period (May to July 2011); the highest values were observed in cave PEA 380 ($26.27 \pm 0.39^\circ\text{C}$), the lowest values in cave PEA 378 ($21.14 \pm 0.78^\circ\text{C}$). The average moisture in each cave was also different, with the highest values measured in cave PEA 383 ($79.33 \pm 6.71\%$ RH) and the lowest in cave PEA 342 ($54.80 \pm 7.55\%$ RH). Although the caves in which the specimens were observed are slightly different, all of them represent dry oligotrophic systems. The main resource in all caves is bat guano, especially from the insectivorous species *Carollia perspicillata* (Linnaeus) and *Pteropteryx macrotis* (Wagner) and from the carnivorous species *Chrotopterus auritus* (Peters), but some piles of faeces of the rodent *Kerodon rupestris* (Wied-Neuwied), popularly known as mocó, may also be found in some areas of the caves. The main vegetation type outside the caves is pasture, with some fragmented areas of Caatinga formation. The environment outside the caves is dry and the degree of human impact is quite variable. Furthermore, some caves in which specimens were found are influenced by human activities, as cave PEA 380 (type locality), the entrance of which (Fig. 4e) is used by local residents as a shelter while fishing in the river in front of the cave (Fig. 4d).

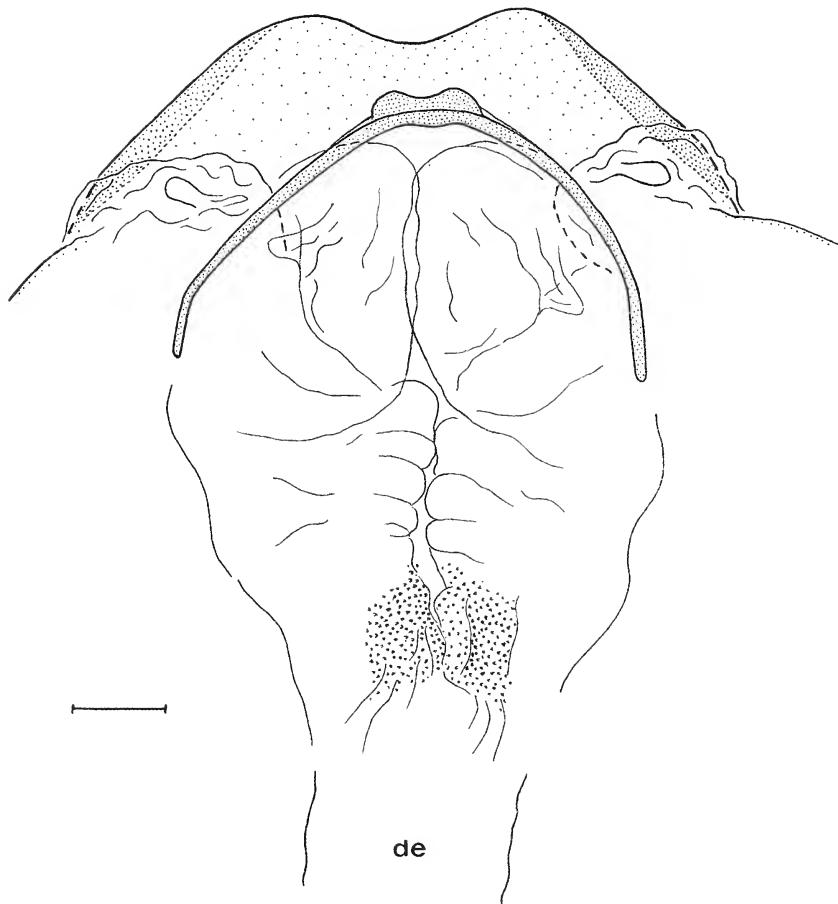


FIG. 3

Neotroglia curvata n. spec., male. Posterior margin of hypandrium (pilosity not shown), phallosome and distal end of ductus ejaculatorius (de), dorsal view. Scale bar 0.1 mm.

BIOLOGY: *N. curvata* was observed on different substrata inside the caves, mostly in deeper zones, rarely also near the entrance (e. g. in cave PEA 380, the type locality). This distribution pattern is quite different from that of the other three *Neotroglia* species, which clearly prefer areas close to cave entrance (personal observations by RLF). Adults of *N. curvata* usually were observed on the cave walls, mostly sheltered in small crevices. In contrast to this, all nymphs were observed on the cave floor, walking on the dry soil or on rocky debris. The nymphs were particularly abundant near organic resources as bat guano (Fig. 4b). Due to the presence of glandular hairs on their dorsal side, especially on abdominal tergites, nymphs were more or less well camouflaged by adherent dust particles. The presence of glandular

hairs could also be confirmed in nymphs of *N. brasiliensis* and *N. aurora*. Nymphal glandular hairs have never before been observed in the suborder Trogiomorpha (see Lienhard, 1998: 25). Adults and nymphs are probably preyed upon by spiders of the genera *Loxosceles* Heineken & Lowe (Sicariidae) and *Theridion* Walkenaer (Theridiidae), which are frequently encountered in the same caves. A freshly moulted teneral adult was observed being eaten by *Theridion* sp. in cave PEA 380 in October 2012 (Fig. 4c).

DISCUSSION

Females of *Neotroglagla curvata* n. spec. are easy to distinguish from those of the three other known species of the genus (see Diagnosis, above). However, the males of all *Neotroglagla* species are very similar to each other. The posterior margin of the apical thickening of the aedeagal arch is bilobed in the new species, simply rounded or almost straight in the three other species. Compared to the three previously known species, the endophallic papillate channel is shorter and wider in the new species and its papillae are smaller; the longitudinal distance between the posterior end of the papillate zone and the anterior end of the aedeagal arch is longer in the new species than in the other ones. If the hypothesis that the posterior sac of the gynosome penetrates through the papillate endophallic channel during copulation (see Lienhard *et al.*, 2010: fig. 10c) is correct, then the different constitution of the channel in *N. curvata* may be related to the relatively short but strongly curved posterior gynosomal sac of this species. However, the intraspecific variability of these male characters is not sufficiently known to affirm diagnostic significance of the above-mentioned differences.

Lienhard *et al.* (2010) suggested that the species *N. brasiliensis* and *N. aurora* are more closely related to each other than to *N. truncata*, forming a species group characterized by the presence of three denticulate lobes in the blister-like zone basally of the posterior sac of the gynosome. This synapomorphy is also present in the new species, while the blister-like zone is not lobate in *N. truncata*.

Antennae of Prionoglarididae are very long and slender. Therefore they are mostly broken in preserved material. Most antennal flagella have an abruptly broken end, only rarely a flagellum with an apically rounded tip can be observed. Lienhard (2007) and Lienhard *et al.* (2010) mentioned the surprisingly low and variable number of antennal segments in Speleketorinae and suggested that this character could constitute an autapomorphy of this subfamily (or even of the family Prionoglarididae). Counts of antennal segments were made on antennae with a seemingly intact apical flagellomere characterized by the tapering and distally rounded tip bearing a small apical sensillum. The maximal number of antennal segments (i. e. scape, pedicel and flagellomeres) observed in the subfamily Prionoglaridinae is 10 (Lienhard, 2004), in the subfamily Speleketorinae 15 (Mockford, 1984). Seeger (1975) showed for the psocid suborders Trogiomorpha and Troctomorpha that antennae broken during nymphal life can regenerate by length increase of the remaining flagellomeres. The examination of the very long and apically tapering 4-segmented antenna on one side of the allotype of *N. curvata* (total length 5.1 mm; f1 = 2.5 mm; f2 = 2.4 mm) showed that the tip of f2 of the obviously regenerated flagellum is very similar to the tip of an intact psocid antenna and clearly different from the abruptly broken end of the 5-segmented antenna

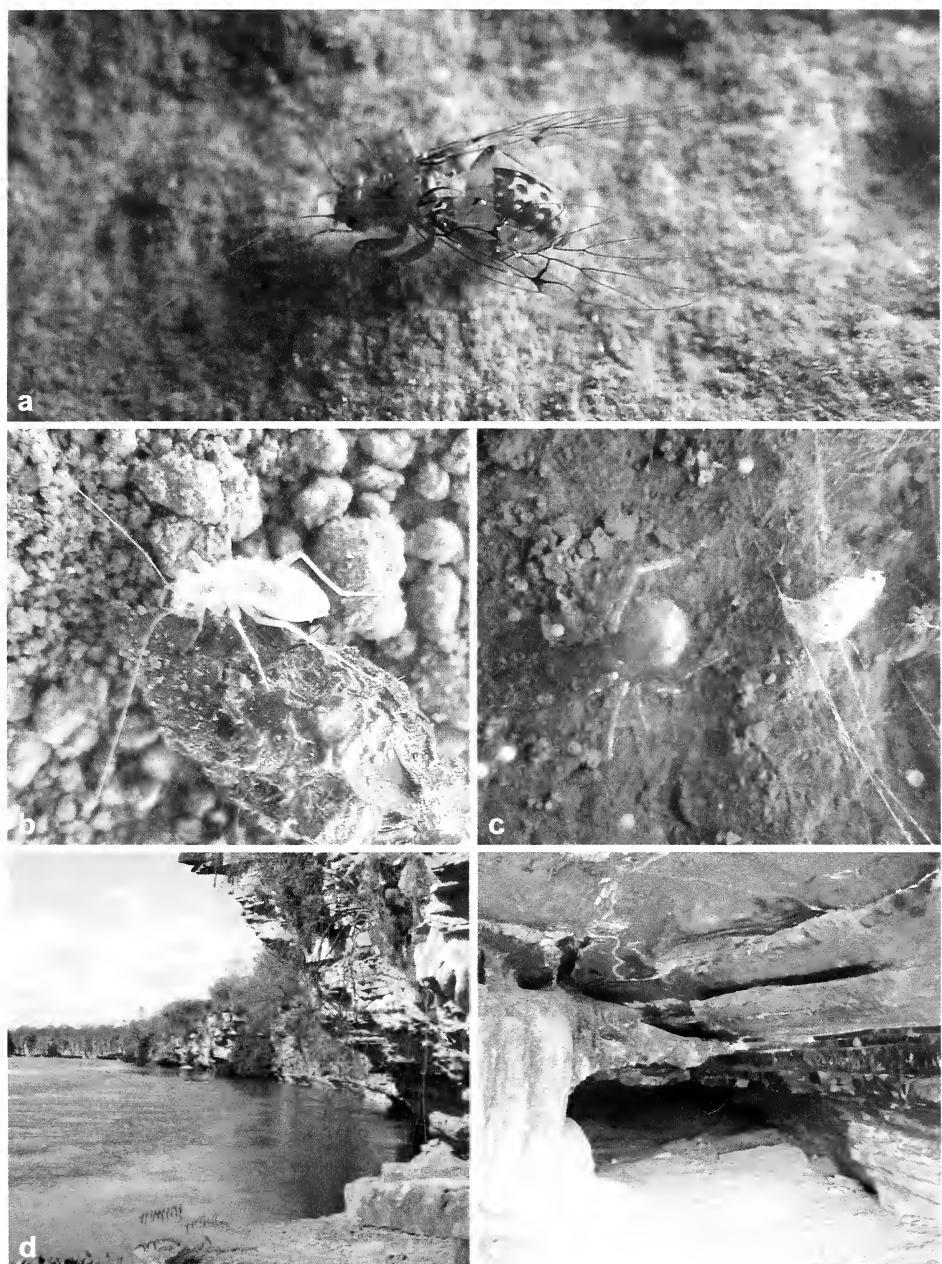


FIG. 4

Neotroglia curvata n. spec. (a) Adult specimen (sex not known), body length (without wings) 3.5 mm. (b) Nymph feeding on bat guano. (c) Teneral adult captured by *Theridion* spec. (d) Type locality; at right, in foreground, the entrance zone of cave PEA 380. (e) Entrance of cave PEA 380.

on the other side of this specimen. That second antenna was obviously damaged during adult life, as were both antennae of the holotype (8- and 9-segmented). Probably all previously observed "intact" antennae of Prionoglarididae are in fact incomplete, regenerated antennae which were damaged prior to adult life. Therefore the complete number of antennal segments remains unknown for this family. At present it cannot be confirmed that a complete antenna of Prionoglarididae has at least 20 segments, as it is normal in the suborder Trogiomorpha (Lienhard, 1998) to which this family belongs (see Yoshizawa *et al.*, 2006).

ACKNOWLEDGEMENTS

We thank Simone Soares Salgado for collecting the specimens, Edvard Magalhães for sending information about the caves and their microclimatic conditions, and Maricélio Medeiros Guimarães and Marconi Souza Silva for their precious help in the field during the October 2012 visit to the area. We are also very grateful to Peter Schwendinger (MHNG) and Kazunori Yoshizawa (SEHU) for reading the manuscript and making valuable suggestions, and to Manuela Lienhard for preparing the photo plate. RLF also thanks the Conselho Nacional do Desenvolvimento Científico e Tecnológico for providing grant (CNPq grant 301061/2011-4).

REFERENCES

LIENHARD, C. 1998. Psocoptères euro-méditerranéens. *Faune de France* 83: XX+517 pp.

LIENHARD, C. 2004. *Siamoglaris zebrina* gen. n., sp. n., the first representative of Prionoglarididae from the Oriental Region (Insecta: Psocoptera). *Revue suisse de Zoologie* 111(4): 865-875.

LIENHARD, C. 2007. Description of a new African genus and a new tribe of Speleketorinae (Psocodea: 'Psocoptera': Prionoglarididae). *Revue suisse de Zoologie* 114(3): 441-469.

LIENHARD, C., OLIVEIRA DO CARMO, T. & LOPES FERREIRA, R. 2010. A new genus of Sensitibillini from Brazilian caves (Psocodea: 'Psocoptera': Prionoglarididae). *Revue suisse de Zoologie* 117(4): 611-635.

MOCKFORD, E. L. 1984. Two new species of *Speleketor* from southern California with comments on the taxonomic position of the genus (Psocoptera: Prionoglaridae). *Southwestern Naturalist* 29(2): 169-179.

SEEGER, W. 1975. Funktionsmorphologie an Spezialbildungen der Fühlergeissel von Psocoptera und anderen Paraneoptera (Insecta); Psocodea als monophyletische Gruppe. *Zeitschrift für Morphologie der Tiere* 81: 137-159.

YOSHIZAWA, K. 2005. Morphology of Psocomorpha (Psocodea: 'Psocoptera'). *Insecta Matsudiana, New Series* 62: 1-44.

YOSHIZAWA, K., LIENHARD, C. & JOHNSON, K. P. 2006. Molecular systematics of the suborder Trogiomorpha (Insecta: Psocodea: 'Psocoptera'). *Zoological Journal of the Linnean Society* 146: 287-299.

Contribution to the knowledge of the Chamaemyiidae (Diptera) of Italy, Switzerland and some Mediterranean countries with the description of *Parochthiphila (Euestelia) ephesi* n. spec. from Turkey

Alfio RASPI

Dipartimento di Coltivazione e Difesa delle Specie Legnose "G. Scaramuzzi", Università di Pisa, Via S. Michele degli Scalzi 2, I-56124 Pisa, Italy.
E-mail: araspi@agr.unipi.it

Contribution to the knowledge of the Chamaemyiidae (Diptera) of Italy, Switzerland and some Mediterranean countries with the description of *Parochthiphila (Euestelia) ephesi* n. spec. from Turkey. - A new species, *Parochthiphila (Euestelia) ephesi* sp. n. from Turkey is described, illustrated and compared with related species. There follows a list of 19 species of the genera *Parochthiphila*, *Chamaemyia* and *Leucopis*, collected in Italy, Switzerland and several countries around the Mediterranean. *Parochthiphila (Euestelia) nigrolineata* Beschovski & Merz is recorded for the first time from Italy (Valley of Aosta), *Parochthiphila (Parochthiphila) inconstans* (Becker), *Parochthiphila (Euestelia) nigripes* (Strobl), *Chamaemyia juncorum* (Fallén) and *Chamaemyia polystigma* (Meigen) are new for Cyprus, and *Parochthiphila (Euestelia) frontella* Rondani is new for France (Corsica) and reported for the first time from the following Italian regions: Sardinia, Lazio, Puglia. The frequently misidentified species *Chamaemyia aridella* (Fallén) is illustrated to show the variability in the shape of the aedeagus.

Keywords: Diptera - Chamaemyiidae - new species - *Parochthiphilia* - *Chamaemyia* - *Leucopis*.

INTRODUCTION

The Chamaemyiidae, with larvae that prey on Aphidoidea and/or Coccoidea, are small, generally silvery grey flies (1-5 mm long) found in all zoogeographic areas, although the majority of known species are described from the Palaearctic Region. Faunistic and systematic knowledge of the family in the Palaearctic Region, however, is still fragmentary and rather poor, partly due to difficulties in collection and species determination, in particular with regard to females. Worldwide, this family comprises more than 250 described species, divided into 27 genera and subgenera. The family exhibits characteristic trophic specialization at generic or subgeneric level (McAlpine, 1960, 1971; Raspi, 1983a, 1983b, 1985, 1988, 1995, 1996, 2003, 2005, 2006, 2008; Raspi & Bertolini, 1993; Gaimari & Raspi, 2002; Raspi & Ebejer, 2008; Tanasijtshuk, 1986, 1996, 1997).

This contribution presents the data and species determinations of numerous specimens of Diptera Chamaemyiidae, collected in Switzerland and some Mediterranean countries, mainly in Italy.

MATERIAL AND METHODS

This study is based on 287 specimens collected with an insect net in the following countries: Italy, Switzerland, France, Malta, Cyprus and Turkey. In preparation of the genitalia, the final segments of specimens were removed and soaked in a hot KOH solution for several minutes, rinsed in distilled water, studied and stored in a drop of water soluble Faure liquid on the label under the specimen. Morphological terms in the descriptions follow McAlpine (1981, 1987). Two asterisks ** signify that the species is new for this country (Gaimari & Tanasijtshuk, 2011) and one asterisk * after an Italian region indicates that the species is here for the first time recorded in this region (Raspi, 1995).

In general, at least one specimen of each species is deposited in the Muséum d'Histoire Naturelle de Genève (MHNG). Duplicate specimens are retained in the Dipterological Collection of the "G. Scaramuzzi" Department of Coltivazione e Difesa delle Specie Legnose, Pisa University (CDSL).

RESULTS

Parochthiphila (Euestelia) ephesi new species

Figs 1-7

HOLOTYPE: ♂, W. TURKEY, Pamukak, near Ephesus/beach, 29.IV.1998, D.M. Ackland legit.

PARATYPES: 6♂♂, 3♀♀, same data as holotype. – 1♀, W. Turkey: near Bodrum, 4 Km NNE, headland, 26.IV.1998, D.M. Ackland legit.

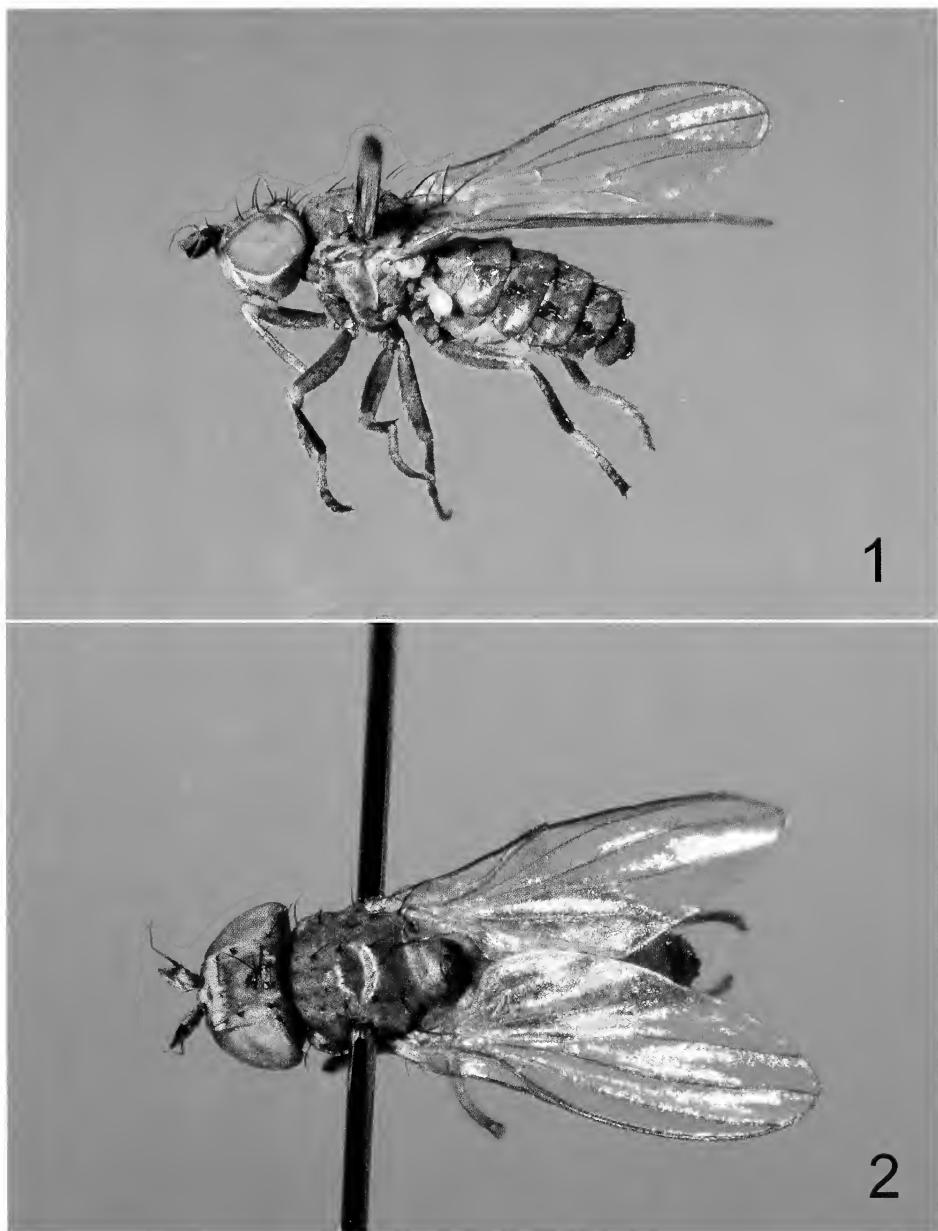
The holotype and 6 paratypes (4♂♂ & 2♀♀) are deposited in the MHNG and 4 paratypes (2♂♂ & 2♀♀) in the CDSL.

ETYMOLOGY: The specific name refers to the type-locality.

DIAGNOSIS: Body grey with a gilded brown sheen at certain angles of light, more evident on scutellum and abdomen. Mesopleuron without setae. Frons at level of anterior orbital seta with a transverse irregular row of scattered small setulae and, only in the female, a transverse brown or black band which may be less evident sometimes. Antenna brown-black. Mesonotum usually bare, 1 + 3 dorsocentral setae. Male and female with 2 pairs (2 median and 2 lateral) of large, sub-oval elongate, brown-black spots on tergites 3-5. Tibiae and tarsi dark brown-black.

DESCRIPTION: ♂ & ♀ (Figs 1-4). Body 2-2.5 mm long; grey with a gilded pale brown sheen more marked on scutellum and abdomen.

Head: About 1.1 times higher than long; frons at level of anterior ocellus 0.4 times width of head. Frons matt grey, fronto-orbital plate pale grey and raised; at level of anterior orbital seta with transverse irregular row of scattered small setulae and, only in the female, a transverse brown or black band, less conspicuous sometimes, shaded off towards the top and laterally; 2 reclinate orbital setae, the anterior setae reaching anterior third of frons. Ocellar plate silvery grey and slightly raised; ocelli about equidistant. Ocellar setae proclinate, inner vertical seta shorter than outer vertical



FIGS 1-2

Parochthiphila (Euestelia) ephesi n. spec. (2-2.5 mm), Turkey. (1) Male paratype, habitus in lateral view. (2) Male paratype, habitus in dorsal view.

seta, postocellar setae small and convergent. In the female with a conspicuous narrow dark brown-black band above border of lunule, continuing on the side along margin of the eye. Lunule bare, grey, large and sub-rectangular. Face between bases of the antennae with a prominent thin and short brown facial carina. Antenna brown-black, inserted at middle of the head. First flagellomere elongate, with pointed apex, 1.5 times as long as high, setulae white, longer and more visible along upper border. Pedicel grey pruinose on inner part. Arista dark brown, third aristomere 6 times as long as second, with short and white setulae. Ratio height of gena: height of eye about 1: 2.5. Genal bristles present. Palpus brown-black, labellum yellow.

Thorax: Mesonotum bare, grey with a faint gilded brown sheen; line of a few scattered setulae along two short barely noticeable dark grey median stripes. Chaetotaxy: 1 + 3 dorsocentral setae roughly equidistant from each other, sometimes a small setula before presutural dorsocentral seta; no prescutellar setae present; 1 postpronotal, 1 presutural supra-alar, 2 notopleurals with anterior distinctly longer than posterior, 1 supra-alar, 1 posterior intra-alar and 1 postalar seta about twice the length of posterior intra-alar seta. Prescutellum barely distinguishable. Scutellum bare, grey with a more marked gilded brown sheen, 1 pair of basal setae half the length of subapical pair. Anepisternal seta absent; Katepisternum with 1 strong seta preceded by 1 short seta along upper edge.

Wing: Hyaline with dark microtrichia, veins pale brown. Crossvein r-m at or just beyond middle of discal cell. Veins R_{4+5} and M weakly divergent in distal part. Apical section of CuA₁ 1.5 times longer than crossvein dm-cu. Haltere pale yellow.

Legs: Coxae and femora dark grey with a gilded brown sheen; apical part of femora and base of all tibiae yellow, tibiae dark brown-black, tarsi dark brown in dorsal and lateral part, yellow in ventral part.

Abdomen: Grey, with a gilded brown sheen. Syntergite 1+2 brown-grey gilded, darker along posterior and posterolateral edge. Male and female with 2 pairs (2 median and 2 lateral) of large, suboval elongate, brown-black spots on tergites 3-5. Tergites 3-5 covered with sparse setulae, arranged in approximately four irregular transverse rows, longer and stronger at postero-lateral angles and along posterior edge.

Male terminalia (Figs 5, 7): Pregenital sclerites: two narrow separate sclerites present dorsally between fifth tergite and epandrium, sixth tergite transversally narrow and elongated sub-rectangular, sixth sternum mostly membranous, only a narrow arched asymmetrical and very weak sclerite; syntergosternite 7 + 8 forming a ring, more sclerotized dorsally; almost membranous ventrally except for a narrow and asymmetrical sclerotized margin along upper edge. Epandrium sub-rectangular in lateral view, about twice as high as wide, with strong setae. Aedeagal apodeme sub-triangular, small and slender. Aedeagus, in lateral view, abruptly curved from broad base and tapers gradually towards the tip.

Female terminalia (Fig. 6): Seventh sternite subrectangular and bilobed distally. Seventh tergite with 2 large subtriangular and elongate symmetrical sclerites becoming abruptly narrower in distal third; first third of tergite distinctly more sclerotized.

FIGS 3-4

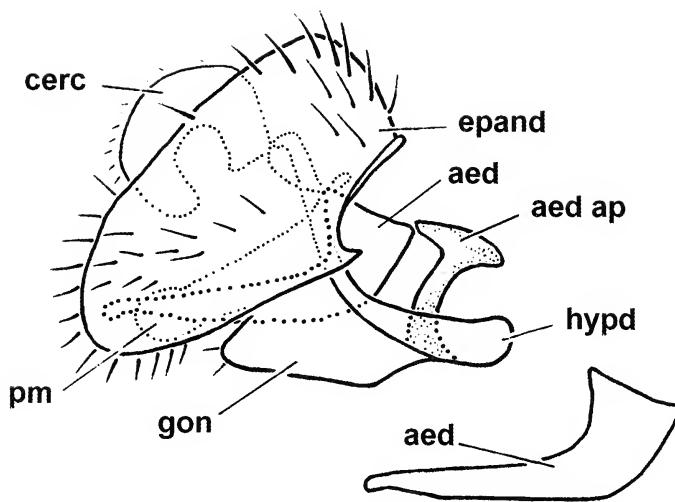
Parochthiphila (Euestelia) ephesi n. spec. (2-2.5 mm), Turkey. (3) Female paratype, habitus in lateral view. (4) Female paratype, habitus in dorsal view.



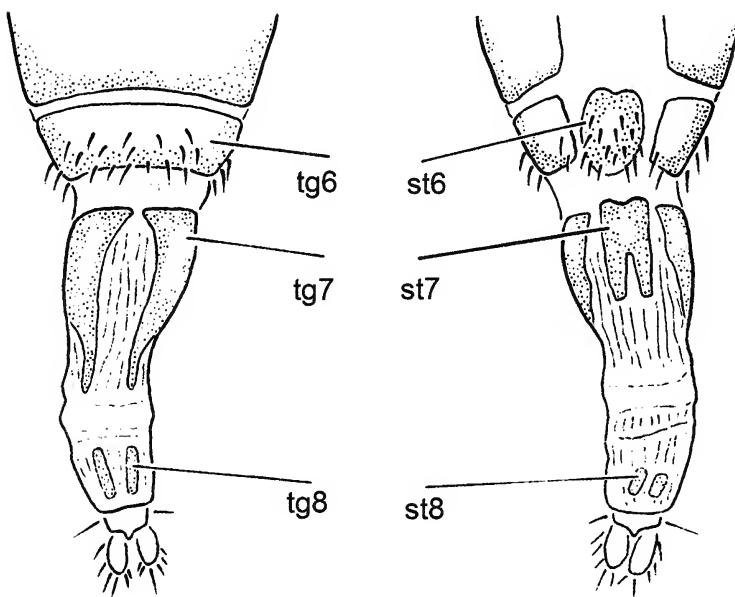
3



4

0.1mm

5

0.1mm

6

FIGS 5-6

Parochthiphila (Euestelia) ephesi n. spec., Turkey. (5) Holotype, male terminalia in lateral view and detail of aedeagus; abbreviations: aed = aedeagus, aed ap = aedeagal apodeme, cerc = cercus, epand = epandrium, gon = gonopod, hypd = hypandrium, pm = paramere. (6) Paratype, female terminalia in dorsal and ventral view; abbreviations: tg = tergite, st = sternite.

Seventh tergite, seventh sternite and cercus brown. Eighth sternite with 2 symmetrical suboval elongate weak sclerites in distal half, eighth tergite with 2 symmetrical elongate very weak sclerites; 2 pairs of strongly sclerotized spherical spermathecae present.

REMARKS: The new species can be assigned to the *P. (E.) coronata* (Loew) group on the basis of its 1+3 strong dorsocentral setae. Within this group only *P. (E.) kimmerica* Tanasijtshuk, 1968, with dark tibiae, and also known from Turkey (Raspi & Ebejer, 2008), is similar to the new species, but they differ in the colouration of body (gilded brown sheen in the new species) and in the brown or black frontal band that is present only in the female in *P. ephesi* sp. n. but in both sexes in *E. kimmerica*. Further, they differ in the structure of the male genitalia.

BIOLOGY: Unknown. Judging from its generic position it may be speculated that the larvae may be found between the leaf sheaths and secondary stalks of Gramineae infested by Pseudococcidae (Sternorrhyncha), where they prey on mealybugs as other species of *Parochthiphila* and *Chamaemyia* with known biology (Raspi, 1983a, 2006).

Parochthiphila (Euestelia) coronata (Loew, 1858)

MATERIAL EXAMINED: ITALY, Lazio*, 7♂♂, 2♀♀, Roma 10m, Castel Porziano, Strada del Telefono, 30.VIII.2004 (41.41N/12.23E, dry forest, riverbed), Merz, Cerretti & Nardi legerunt (MHNG: 5♂♂ & 2♀♀; CDSL: 2♂♂). – 3♂♂, 2♀♀, Latina 0m, P.N. del Circeo, Sabaudia, Torre di Fogliano, 31.VIII.2004 (41.21N/12.56E, sand dunes, beach) Merz, Cerretti & Nardi legerunt (MHNG: 1♂♂ & 2♀♀; CDSL: 2♂♂). – 1♂♂, Latina 20m, P.N. del Circeo, S. Felice, Quarto Freddo, 1.IX.2004 (41.14N/13.03E, pasture, shrubs) Merz, Cerretti & Nardi legerunt (MHNG). – ITALY, Sicily, 5♂♂, 5♀♀, Etna 1450m, Piano di Donne, 5.VI.1999, B. Merz legit (MHNG: 3♂♂ & 3♀♀; CDSL: 2♂♂ & 2♀♀). – 1♂♂, Etna 1800m, Piano Provenzana, 9.VI.1999, B. Merz legit (MHNG). – 3♂♂ & 4♀♀, Etna 1700m, rif. Citelli, 12.VI.1999, B. Merz legit (MHNG: 2♂♂ & 4♀♀; CDSL: 1♂♂). – SWITZERLAND, 1♀, BL 265m, Birsfelden, 13.VI.1989, B. Merz legit (MHNG). – 1♀, VS 630m, Leuk-Pfynwald, 6.VII.1997, B. Merz legit (MHNG). – 1♂♂, VS 620m, Leuk-Rotafen, 10.VIII.1997, B. Merz legit (MHNG). – 2♂♂, VS 590m, Leuk-Pfynwald, 12.VIII.1997, B. Merz legit (MHNG: 1♂♂; CDSL: 1♂♂). – 1♂♂, 1♀, VS 600m, Leuk-Pfynwald, 614100/290070, 6.VI.2001, Merz & Landry legerunt (MHNG). – FRANCE, Drôme, 1♀, 820-950m, Chalancon/Col des Roustans (D135), 11.VII.1999, B. Merz legit (MHNG).

Parochthiphila (Euestelia) frontella (Rondani, 1874)

MATERIAL EXAMINED: ITALY, Sardinia*, 1♀, Dorgali reg. 0m, Cala Luna (S of Cala Gonone)/St.9, 17.VI.2002, 49.13.27N/9.37.36E, B. Merz & M. Eggenberger/St.9 legerunt (MHNG). – 2♂♂, 2♀♀, Bosa region 0m, Bosa Marina, 20.VI.2002/St.13, 40.17.15N/8.29.04E, B. Merz & M. Eggenberger/St.13 legerunt (MHNG: 1♂♂ & 2♀♀; CDSL: 1♂♂). – 1♀, Baunei region 0m, Santa Maria Navarrese/St.10, 18.VI.2002, 39.59.13N/9.41.18E, B. Merz & M. Eggenberger/St.10 legerunt (CDSL). – 3♂♂, Cagliari reg. 1000m, Mt. Ferru, Mt. Urtigu/St.15, 21.VI.2002, 40.09.29N/8.37.44E, B. Merz & M. Eggenberger/St.15 legerunt (MHNG: 2♂♂; CDSL: 1♂♂). – Lazio*, 1♂♂, Latina 10m, P.N. Circeo, Sabaudia, Selva del Circeo, 31.VIII.2004/3, 41.21N/13.01E, mixed forest, pond, Merz, Cerretti & Nardi legerunt (CDSL). – 2♂♂, Latina 20m, P.N. del Circeo, S. Felice, Quarto Freddo, 1.IX.2004 (41.14N/13.03E, pasture, shrubs) Merz, Cerretti & Nardi legerunt (MHNG: 1♂♂; CDSL: 1♂♂). – 4♂♂, Latina 0m, P.N. Circeo, Sabaudia, Pantani dell’Inferno, 2.IX.2004, 41.20N/12.59E, saltmarsh, Merz, Cerretti & Nardi/St.9 legerunt (MHNG). – Puglia*, 1♀, 650m, Mte. Gargano, 5km E S. Giovanni, 26.VII. 1995, B. Merz legit (MHNG). – FRANCE**: Corsica (South), 3♂♂, Sartène, Tizzano, 80m, Les Hauts de L’Avena, 1.VIII.2004, B. Merz & S. Guyot legerunt (MHNG: 2♂♂; CDSL: 1♂♂).

REMARKS: The posterior tibia in the females of Sardinia is sometimes grey-dark under the dark ring close to the base. The males of Sardinia and Corsica have often small dorsal and lateral spots on abdomen and/or posterior tibia with two well visible dark rings (Rondani, 1874; Raspi, 2006).

***Parochthiphila (Euestelia) nigripes* (Strobl, 1900)**

MATERIAL EXAMINED: ITALY, Sardinia*, 3♂♂, Bosa region 0m, Bosa Marina, 20.VI.2002/St.13, 40.17.15N/8.29.04E, B. Merz & M. Eggenberger/13 legerunt (MHNG: 1♂; CDSL: 2♂♂). – FRANCE, Bouches-du-Rhône, 1♂, Arles-Gare, 24.V.1993, B. Merz legit (MHNG). – 1♀, Arles-Rhône Ufer, 27.V.1995, B. Merz & M. Eggenberger legerunt (MHNG). – CYPRUS**: 1♂, 12 Km N Akrounta, 640 m, 24.IV.2002/St.14, 34.49N/33.06E, pine forest, Merz, Deeming, Ebejer & Gatt legerunt (CDSL). – TURKEY, 2♂♂, Pamakkule, 20Km NNE Denizili near Hotel, 23.IV.1998, D.M. Ackland legit (MHNG: 1♂; CDSL: 1♂). – 1♂, W. Turkey near Bodrum 4Km NNE, headland, 26.IV.1998, D.M. Ackland legit (MHNG). – 1♂, Antalya Prov., Camyuva 0m, 5Km S Kemer, 27.IV.2000, Merz & Senay legerunt (MHNG). – 1♀, Antalya Prov., Termessos 350m, 25Km NW Antalya, 1.V.2000, Merz & Senay legerunt (MHNG).

REMARKS: Frequently, in specimens with 1+3 dorsocentral setae the anterior two postsutural setae are small and only the last one is well developed, the mesonotum is setulose, and often the abdomen of male lacks dark spots.

***Parochthiphila (Euestelia) nigrolineata* Beschovski & Merz, 1998**

Fig. 8

MATERIAL EXAMINED: ITALY**, Valley of Aosta, 2♂♂, 600m, St. Pierre, 15.V.1999, Merz & Schmid-Egger legerunt (MHNG: 1♂; CDSL: 1♂). – 1♂, 800-850m, St. Pierre, M. Torrette, 22.IV.2003, 584300/062700, B. Merz & F. Amiet legerunt (CDSL). – SWITZERLAND, 1♀, TI 350m, Biasca Loderio, 4.VIII.1997, B. Merz legit (MHNG). – 1♂, VS 630m, Leuk-Pfynwald, 6.VII.1997, B. Merz legit (CDSL). – 1♂, VS 630m, Leuk-Platten, 22.IV.1998, Merz & Botta legerunt (MHNG). – 1♀, VS 625m, Leuk-Platten, 1.VIII.1998, Merz & Bachli legerunt (MHNG). – 1♀, VS 625m, Leuk-Platten, 2.V.1999, B. Merz legit (MHNG). – 5♂♂, VS 600m, Leuk-Pfynwald, 614100/290070, 6.VI.2001, Merz & Landry legerunt (MHNG: 4♂; CDSL: 1♂). – 1♀, VS 625m, Leuk-Platten, 617700/128400, 8.VI.2001, Merz & Landry legerunt (MHNG). – 1♂, VS 600m, Leuk-Pfynwald, 614100/290070, 25.VIII.2001, Merz & Landry legerunt (MHNG). – 2♂♂; 1♀, VS 625m, Leuk-Platten, 30.V.2002, B. Merz legit (MHNG: 1♂ & 1♀; CDSL: 1♂). – 1♂, VS 460-750m, Branson/Follatères, 9.VI.2004, B. Merz & J.P. Haenni legerunt (CDSL).

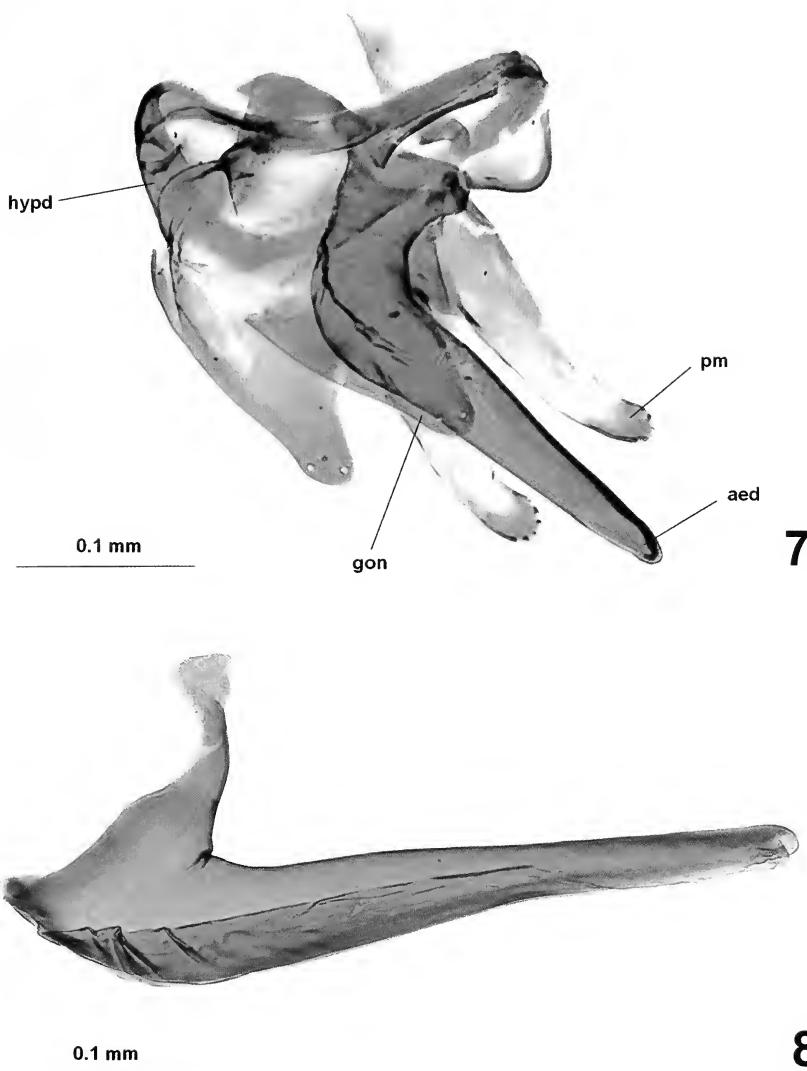
REMARKS: This species, characterized by “mesopleural bristles and setae absent” (Beschovski & Merz, 1998), differs from exteriorly similar *P. coronata* basically by a yellow-golden frons under the transverse black band, by two slight black stripes along dorsocentral setae, by roughly continuous lateral black bands on segments 2-5 of abdomen and the male terminalia. The shape of the aedeagus of *P. nigrolineata* (Fig. 8) is similar to *P. nigripes* and *P. tryapitzini* Tanasijtshuk, 1968, but it differs from these two species in chaetotaxy, and colour of the antennae, palpi and legs (Beschovski & Merz, 1998).

***Parochthiphila (Euestelia) transversa* (Hennig, 1938)**

MATERIAL EXAMINED: ITALY, Sicily, 2♂♂, Etna 1450m, Piano di Donne, 5.VI.1999, B. Merz legit (MHNG). – 2♂♂, Etna 1000m, 3Km NW Milo, 5.VI.1999, B. Merz legit (MHNG: 1♂; CDSL: 1♂).

***Parochthiphila (Parochthiphila) inconstans* (Becker, 1903)**

MATERIAL EXAMINED: MALTA, 1♂, 1♀, Gozo, Ramla Bay, 16.VI.1999, B. Merz legit (MHNG). – 1♂, Marsaxlokk Beach, 35.50N/4.33E, 4.V.2001, B. Merz legit (CDSL). – 1♂



FIGS 7-8

Parochthiphila (Euestelia) spp. (7) *Parochthiphila (Euestelia) ephesi* sp. n., Turkey, paratype, male terminalia in lateral view; abbreviations: aed = aedeagus, cerc = cercus, gon = gonopod, hypd = hypandrium, pm = paramere. (8) *Parochthiphila (Euestelia) nigrolineata* Beschovski & Merz, Italy, Valley of Aosta, aedeagus in lateral view.

Mgiebah, 0m, 35.58N/14.23E, 5.V.2001, B. Merz legit (MHNG). – CYPRUS**: 3♂♂, 1♀, Akamas peninsula, 0m, Lara beach, 28.IV.2002/St.28, 34.58N/32.19N, dunes, meadow, Merz, Deeming, Ebejer & Gatt/St.28 legerunt (MHNG: 2♂♂ & 1♀; CDSL: 1♂).

Parochthiphila (Parochthiphila) spectabilis (Loew, 1858)

MATERIAL EXAMINED: ITALY: Lazio, 2♂♂, 2♀♀, Latina 0m, P.N. Circeo, Sabaudia, Pantani dell’Inferno, 21.IX.2004/9, 41.20N/12.59E, saltmarsh, Merz, Cerretti & Nardi/9 legerunt (MHNG: 2♂♂ & 1♀; CDSL: 1♀).

Chamaemyia aridella (Fallén, 1823)

Figs 9-20

MATERIAL EXAMINED: ITALY: Lombardy, 1♂, Marmirolo Res. Nat., 60m, Bosco della Fontana, 27.VI.2000, B. Merz & F. Mason legerunt (CDSL). – Veneto, 6♂♂, Mt. Baldo 1750-1850m, La Colma, 1.VII.2000, B. Merz & F. Mason legerunt (MHNG: 4♂♂; CDSL: 2♂♂). – 2♂♂, Verona, Mt. Lessini 1750m, Mt. Range, Mt. Castelberto, 12.VIII.2003, B. Merz legit (MHNG). – Tuscany*, 6♂♂, 1400-1600m, Orecchiella (6 km E Sillano) R.N. Pania di Corfino, 29.VI.2000, B. Merz & F. Mason legerunt (MHNG: 4♂♂; CDSL: 2♂♂). – Puglia*, 2♂♂, 650m, Mte. Gargano, 5km E S. Giovanni, 26.VII.1995, B. Merz legit (MHNG). – 1♂, 650m, Mte. Gargano, 5km E S. Giovanni, 27.VII.1995, B. Merz legit (MHNG). – Sicily, 1♂, Etna 1450m, Piano di Donne, 5.VI.1999, B. Merz legit (CDSL). – 1♂, Etna 1000m, 3Km NW Milo, 5.VI.1999, B. Merz legit (MHNG). – 6♂♂, 1♀, 1800m, Piano Provenzana, 9.VI.1999, B. Merz legit (MHNG: 4♂♂ & 1♀; CDSL: 2♂♂). – 1♂, 750m, Linguaglossa, 6.VI.1999, B. Merz legit (MHNG).

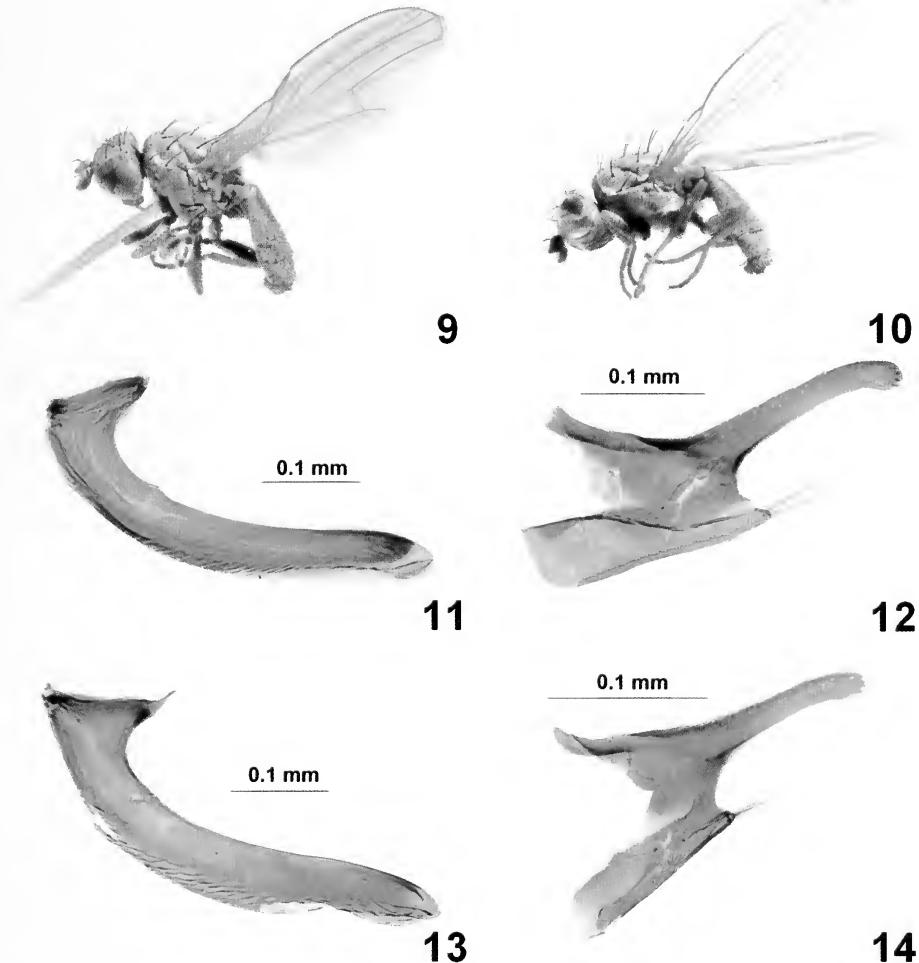
REMARKS: *C. aridella* has black antennae, yellow, rarely brownish palpi, and abdomen silver grey with light gold pollinosity and without spots in both sexes (Coe, 1942; Collin, 1966; Beschovski & Tanasijtshuk, 1990; Beschovski, 1992). Rarely, however, faint dorsal spots on tergites 4-5 may be developed. The species is characterized by long setae on posterior margin of tergite 5 in both sexes, and the shape of tergite 9 of male which is oval in lateral view and shiny black (Figs 9, 10, 15). Aedeagus, in lateral view, variable at base, tending to be enlarged posteriorly, then characteristically and regularly curved from base to tip (Figs 11-20), fairly elongated, but always longer than parameres. Ventral part of tubular aedeagus less sclerotized and ruffled, and therefore warps sometimes during preparation for morphological study; thus a similar shape may appear very different (Figs 11, 13, 16, 18, 19) and may be source for misidentifications. The species is common in Italy from 600 to 2000m.

Chamaemyia elegans (Panzer, 1809)

MATERIAL EXAMINED: FRANCE, Haute Savoie, 1250m, 1♂, Grand Salève, Observatoire, 10.VIII.2003, B. Merz legit (MHNG).

Chamaemyia flavicornis (Strobl, 1902)

MATERIAL EXAMINED: MALTA, 1♀, Salina Bay, 4.VI.1999, B. Merz legit (CDSL). – 1♀, Fommir-Rih Bay, 14.VI.1999, B. Merz legit (CDSL). – 3♂♂, Malta-Gozo, Ramla Bay, 16.VI.1999, B. Merz legit (MHNG). – 19♂♂, 3♀♀, Ghajnej Tuffieha Bay, 0m, 35.56N/14.21E, 1.V.2001, B. Merz legit (MHNG: 14♂♂ & 3♀♀; CDSL: 5♂♂). – 1♀, 0m, Salina Bay, 35.57N/14.25E, 2.V.2001, B. Merz legit (CDSL). – 1♀, Ghajnej Rihana, 20m, 35.55N/14.25E, 2.V.2001, B. Merz legit (CDSL). – 3♂♂, 1♀, Mgiebah, 35.58N/14.23E, 5.V.2001, B. Merz legit (MHNG: 3♂♂; CDSL: 1♀). – 3♂♂, 1♀, Malta-Gozo, Ghasri, Sara valley, 3.V.2002, B. Merz legit (MHNG). – 1♂, Malta-Gozo, Mgarr-ix-Xini, 3.V.2002, B. Merz legit (CDSL). – 1♂, Gnejna Bay, 0m, 4.V.2002, B. Merz legit (MHNG).



FIGS 9-14

Chamaemyia aridella (Fallén) (2.2-2.8 mm). (9-10) Male, habitus in lateral view. (9) Male from Italy (Veneto). (10) Male from Italy (Tuscany). (11-14) Variability in shape of male terminalia in lateral view from same locality in Italy (Veneto, Mt. Baldo, 1.VII.2000, 1750-1850m.), (11, 13) Aedeagus. (12, 14) Gonite,

REMARKS: Yellow antennae, only the tip of first antennomere dark. Mesonotum with dorsocentral and acrostical prescutellar setae strong, body grey-yellow, wing yellowish and characteristic male terminalia (Tanasijtshuk, 1986). Many specimens with Laboulbeniales (Ascomycetes) on legs.

Chamaemyia geniculata (Zetterstedt, 1838)

MATERIAL EXAMINED: ITALY, Veneto*, 1♂, Mt. Baldo 1750-1850m, La Colma, 1.VII.2000, B. Merz & F. Mason legerunt (MHNG).

Chamaemyia juncorum (Fallèn, 1823)

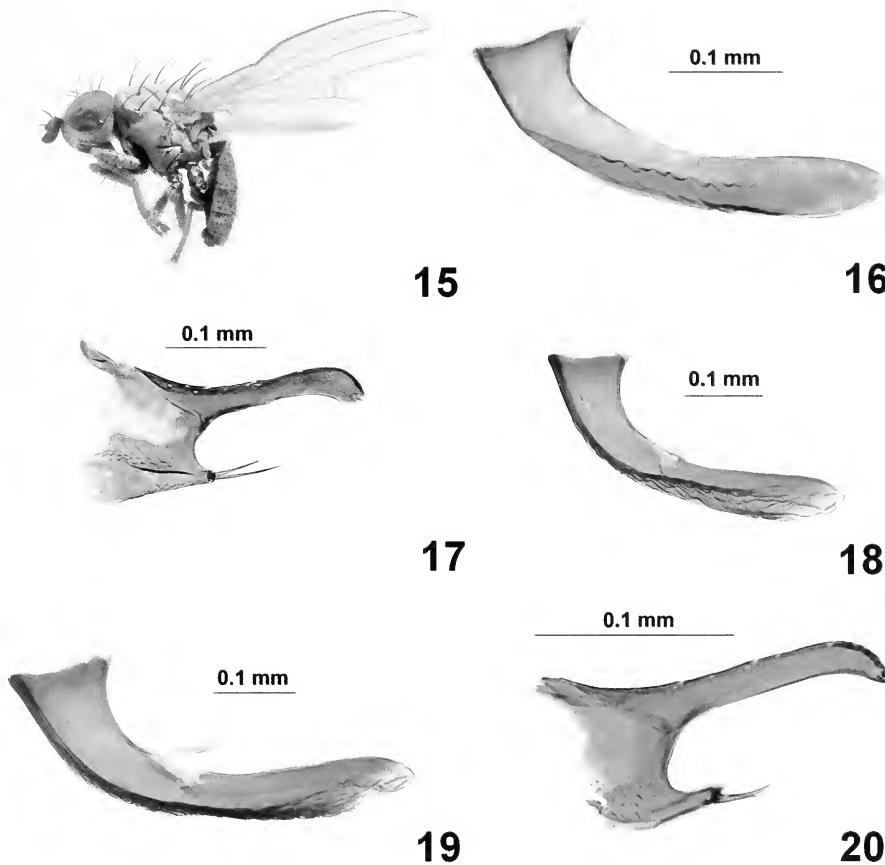
MATERIAL EXAMINED: ITALY, Valley of Aosta*, 1♀, St. Pierre 600m, 15.V.1999, Merz & Schmid-Egger legerunt (MHNG). – Lombardy, 7♂♂, 2♀♀, Marmirolo Res. Nat., 60m, Bosco della Fontana, 27.VI.2000, B. Merz & F. Mason legerunt (MHNG: 4♂♂ & 2♀♀; CDSL: 3♂♂). – Veneto, 1♂, 1000m, Erbezzo, 2.VII.2000, B. Merz & F. Mason legerunt (CDSL). – 1♂, 800m, Erbezzo, Cappella Fasani, 2.VII.2000, B. Merz & F. Mason legerunt (MHNG). – 2♂♂, Verona, Mt. Lessini, 1750m, Mt. Range, Mt. Castelberto, 12.VIII.2003, B. Merz legit (MHNG). – Tuscany, 2♂♂, 2♀♀, Abetone Res. Nat., Campolino, 1400-1800m, 28.VI.2000, B. Merz & F. Mason legerunt (MHNG: 1♂♂ & 1♀♀; CDSL: 1♂♂ & 1♀♀). – 1♂, Orecchiella (6 km E Sillano) R.N. Pania di Corfino, 1400-1600m, 29.VI.2000, B. Merz & F. Mason legerunt (MHNG). – Sardinia*, 2♀♀, Iglesias reg. 730m, S Benedetto, Marganai forest/St.1, 11.VI.2002, 39.20.26N/8.34.14E, B. Merz & M. Eggenberger legerunt (MHNG: 1♀; CDSL: 1♀). – Sicily, 1♀, 750m, Linguaglossa, 6.VI.1999, B. Merz legit (MHNG). – 3♂♂, Etna 1450m, Piano di Donne, 5.VI.1999, B. Merz legit (MHNG: 2♂♂; CDSL: 1♂). – CYPRUS**: 1♂, 660m, 6 km N Dora, 27.IV.2002/St.25, 34.48N/32.45E, pasture, hilltopping, Merz, Deeming, Ebejer & Gatt/St.25 legerunt (MHNG). – SWITZERLAND, 1♂, VS 1400m, Visperterminen/Kreuz, 3.VI.2003, B. Merz legit (MHNG). – 1♂, JU 1020m, Les Breuleux, La Tourbière, 4.VI.2003, Merz, Haenni & Rapp legerunt (MHNG).

REMARKS: Palpus yellow, antenna black, dorsal spots on abdominal tergites from third segment and characteristic male terminalia (Tanasijtshuk, 1986; Beschovski, 1995).

Chamaemyia polystigma (Meigen, 1830)

MATERIAL EXAMINED: ITALY: Valley of Aosta*, 1♀, St. Pierre 600m, 15.V.1999, Merz & Schmid-Egger legerunt (MHNG). – Lombardy, 1♀ Mantua pr. 50m, Marmirolo, Bosco della Fontana, 25.V.2001, 45.12N/10.45E, B. Merz & F. Mason legerunt (MHNG). – Trentino, 1♀, Trento pr. 260m, Avio, valle dei Molini, 26.V.2001, 45.45N/10.55E, B. Merz & F. Mason legerunt (CDSL). – Veneto, 5♂♂, Mt. Baldo 1750-1850m, La Colma, 1.VII.2000, B. Merz & F. Mason legerunt (MHNG: 4♂♂; CDSL: 1♂). – 1♀, Verona, pr. 1060m, Mt. Lessini, Erbezzo, 27.V.2001, 45.39N/11.00E, B. Merz & F. Mason legerunt (MHNG). – Liguria, 7♀♀, Monterosso a M., P. Mese, 26.IX.1997, B. Merz legit (MHNG: 5♀♀; CDSL: 2♀♀). – Tuscany, 1♂, 1400-1600, Orecchiella (6 km E Sillano) RN Pania di Corfino, 29.VI.2000, B. Merz & F. Mason legerunt (CDSL). – Sardinia, 1♀, Iglesias reg. 570m, S. Benedetto, Marganai forest/St.2, 11.VI.2001, 39.21.22N/8.35.04E, B. Merz & M. Eggenberger/St.2 (MHNG). – 1♂, Nuoro reg. 120m, 8 km E Oliena/St. 4, Hotel Su Gologone, 13.VI.2002, 40.17.23N/9.29.20E, B. Merz & M. Eggenberger/St.4 legerunt (MHNG). – 1♀, Nuoro reg./Lula, Monte Albo 1120m, Punta Catirina/St.8, 16.VI.2002, 40.28.51N/9.31.57E, B. Merz & M. Eggenberger/St.8 (MHNG). – 2♂♂, Cuglieri reg. 1000m, Mt. Ferru, Mt. Urtigu/St.15, 21.VI.2002, 40.09.29N/8.37.44E, B. Merz & M. Eggenberger/15 legerunt (MHNG). – Puglia, 1♀, 650m, Mte Gargano, 5 km E S. Giovanni, 26.VII.1995, B. Merz legit (CDSL). – Lazio*, Roma, 1♂, Castel Porziano 10m, Grotta Romagnola, 30.VIII.2004/2, 41.45N/12.25E, old forest Oak trees Merz, Cerretti & Nardi/2 (MHNG). – Sicily, 2♂♂, 1000m, Etna, 3 km NW Milo, 5.VI.1999, B. Merz legit (MHNG: 1♂; CDSL: 1♂). – 2♂♂, 1100m, Nebrodi/Troina Lago d'Ancipa, 8.VI.1999, B. Merz legit (MHNG). – 2♂♂, 750m, Linguaglossa, 6.VI.1999, B. Merz legit (CDSL). – 1♂, 670m, Etna, Milo forest, 12.VI.1999, B. Merz legit (MHNG). – SWITZERLAND: 1♂, VS 1400m, Visperterminen/Kreuz, 3.VI.2003, B. Merz legit (MHNG). – CYPRUS**: 1♂, 780m, Dianzos valley, 2 km NE, Ag. Nikolaos, 25.IV.2002/St.17, 34.52N/32.47E, maquis, Merz, Deeming, Ebejer & Gatt/St.17 legerunt (MHNG). – TURKEY: 1♀, Antalia Prov., 900m, Termessos, 25Km NW Antalya, 1.V.2000, Merz & Senay legerunt (MHNG).

REMARKS: Palpus yellow, first antennomere partially yellow. Body grey, rarely grey-yellowish, both sexes with abdominal spots (Collin, 1966; Tanasijtshuk, 1986; Beschovski, 1995).



FIGS 15-20

Chamaemyia aridella (Fallén) (2.2-2.8 mm). (15) Male from Italy (Sicily), habitus in lateral view. (16-20) Variability in shape of male terminalia, in lateral view from two localities in Italy. (16-17) Sicily, Piano Provenzana, 9.VI.1999, 1800m. (18-20) Puglia, Mte. Gargano, 5km E S. Giovanni, 26.VII.1995, 650m, (16, 18) Aedeagus, (19) Same aedeagus as in Fig. 18, slightly different preparation, (17, 20) Gonite.

Leucopis (Leucopis) argentata Heeger, 1848

MATERIAL EXAMINED: ITALY, Lombardia, 1♂, 50m, Mantova pr., Marmirolo, Bosco della Fontana, 25.V.2001, 45.12N/10.45E, Merz & Mason legerunt (MHNG). – Lazio*, 1♂, 20m, Roma, E S. Severa, Rio Fiume, 3.IX. 2004/11, 42.05N/12.05E, sulphurous spring, Betula, Merz, Cerretti & Nardi/11 legerunt (MHNG). – Sardinia*, 1♂, 0m, Dorgali reg., Cala Luna (S of Cala Gonone)/St.9, 17.VI.2002, 40.13.27N9.37.36E. B. Merz & M. Eggenberger/9 legerunt (CDSL). – 2♂♂, 0m, Bosa Region, Bosa Marina, 20.VI.2002/St.13, 40.17.15N 8.29.04E, B. Merz & M. Eggenberger/13 legerunt (MHNG). – Sicily, 5♂♂, 870m, Randazzo/Lago di Gurrida, 11.VI.1999, B. Merz legit (MHNG: 2♂♂; CDSL: 3♂♂). – MALTA, 6♂♂, 0m, Salina Bay, 35.57N/14.25E, 2.V.2001, B. Merz legit (MHNG: 4♂♂; CDSL: 2♂♂). – 3♂♂, 0m, Salina Bay, 7.V.2002, B. Merz legit (MHNG).

***Leucopis (Leucopis) auraria* Tanasijtshuk, 1961**

MATERIAL EXAMINED: MALTA, 1♂, Buskett Gardens, 14.VI. 1999, B. Merz legit (MHNG). – 1♂, Malta-Gozo, Ghasri, Sara valley, 3.V.2002, B. Merz legit (MHNG). – 2♂♂, Fiddien 130 m, 5.V.2002, B. Merz legit (MHNG: 1♂; CDSL: 1♂).

***Leucopis (Leucopis) glyphinivora* Tanasijtshuk, 1958**

MATERIAL EXAMINED: ITALY, Lazio, Rome, 2♂♂, 1♀, Castel Porziano, 10m, Strada del Telefono, 30.VIII.2004/1, 41.41N/12.23E, dry forest, riverbed, Merz, Cerretti & Nardi/1 legerunt (MHNG: 2♂♂; CDSL: 1♀). – 1♂, Latina, 20m, P.N. Circeo, S. Felice, Quarto Freddo, 1.IX.2004/7, 41.41N/13.03E, pasture, shrubs, Merz, Cerretti & Nardi/7 legerunt (MHNG). – Sardinia, 1♂, Bosa region 0m, Bosa Marina, 20.VI.2002/St.13, 40.17.15N/8.29.04E, B. Merz & M. Eggenberger/13 legerunt (MHNG). – 1♂, Cuglieri reg., 1000m, Mt.Ferru-Mt. Urtigu/St.15, 21.VI.2002, 40.09.29N/8.37.44E, B. Merz & M. Eggenberger/15 legerunt (MHNG). – Sicily, 1♂, Etna 1000m, 3Km NW Milo, 5.VI.1999, B. Merz legit (MHNG). – MALTA, 1♂, Buskett Gardens, 150 m, 35.52N/14.24E, 3.V.2001, B. Merz legit (MHNG). – 1♂, Malta-Gozo, Ghasri, Sara valley, 3.V.2002, B. Merz legit (MHNG).

***Leucopis (Leucopis) revisenda* Tanasijtshuk, 1970**

MATERIAL EXAMINED: MALTA, 1♂, Gozo, Ramla Bay, 16.VI.1999, B. Merz legit (MHNG).

***Leucopis (Leucopis) rufithorax* Tanasijtshuk, 1958**

MATERIAL EXAMINED: ITALY, Lazio, Rome, 1♂, Castel Porziano, 10m, Strada del Telefono, 30.VIII.2004/1, 41.41N/12.23E, dry forest, riverbed, Merz, Cerretti & Nardi/1 legerunt (MHNG). – MALTA*, 1♂, Buskett Gardens, 14.VI. 1999, B. Merz legit (MHNG). – 1♂, Malta-Gozo, Mgarr-ix-Xini, 36.01/14.17E, 5.V.2001, B. Merz legit (CDSL). – 1♂, Fiddien 130 m, 5.V.2002, B. Merz legit (MHNG).

***Leucopis (Leucopomyia) alticeps* Czerny, 1936**

MATERIAL EXAMINED: ITALY, Sardinia*, 1♂, Cagliari reg. 1000m, Mt. Ferru, Mt. Urtigu/St.15, 21.VI.2002, 40.09.29N/8.37.44E, B. Merz & M. Eggenberger/15 legerunt (MHNG).

ACKNOWLEDGEMENTS

I am very grateful to Dr Bernhard Merz, Département d'Entomologie, Muséum d'histoire naturelle de Genève for providing the specimens and for his precious suggestions. I also thank Paolo Giannotti, of the CDSL Department, University of Pisa, for his valuable assistance in preparing the photographic documentation, and Dr Rachel Barritt for linguistic improvements.

REFERENCES

BESCHOVSKI, V. L. 1992. Taxonomical notes on *Chamaemyia flavipalpis* (Haliday), *Ch. aridella* (Fallén) and *Ch. juncorum* (Fallén) (Diptera, Chamaemyiidae) based on the type specimens. *Acta Zoologica Bulgarica* 45: 56-60.

BESCHOVSKI, V. L. 1995. Contribution to the knowledge of the taxonomy and distribution of the *Chamaemyia* species established in Bulgaria (Insecta, Diptera, Chamaemyiidae). *Acta Zoologica Bulgarica* 48: 34-47.

BESCHOVSKI, V. L. & MERZ, B. 1998. Contribution to the knowledge of the Chamaemyiidae (Diptera), with particular reference to the fauna of Switzerland. *Mitteilungen der Schweizerischen Entomologischen Gesellschaft* 71: 83-106.

BESCHOVSKI, V. L. & TANASIJTSHUK, V. 1990. Taxonomic notes on the *Chamaemyia* species in the Collin's collection in Oxford, with description of a new species (Insecta, Diptera: Chamaemyiidae). *Reichembachia* 28 (16): 79-87.

COE, R. L. 1942. The British Species of the Genus *Chamaemyia* Mg. (Dipt. Chamaemyiidae). *Entomologists Monthly Magazine* 78: 173-180.

COLLIN, J. E. 1966. The British Species of *Chamaemyia* Mg. (*Ochthiphila* Fln. (Diptera). *Transactions of the Society for British Entomology* 17(IV): 121-128.

GAIMARI, S. D. & RASPI, A. 2002. The species of *Leucopis*, subgenus *Leucopella* Malloch (Diptera: Chamaemyiidae), from northeastern Africa and Yemen. *African Entomology* 10 (2): 241-264.

GAIMARI, S. D. & TANASIJTSHUK, V. N. 2011. Fauna Europaea: Chamaemyiidae. In: PAPE, T. (ed.). Fauna Europaea: Diptera, Brachycera. *Fauna Europaea, Version 2.4.* <http://www.faunaeur.org>.

MCALPINE, J. F. 1960. A new species of *Leucopis* (*Leucopella*) from Chile and a key to the world genera and subgenera of Chamaemyiidae (Diptera). *The Canadian Entomologist* 92: 51-58.

MCALPINE, J. F. 1971. A revision of the subgenus *Neoleucopis* (Diptera: Chamaemyiidae). *The Canadian Entomologist* 103: 1851-1874.

MCALPINE, J. F. 1981. Morphology and Terminology – Adults (pp. 9-63). In: MCALPINE, J. F., PETERSON, B. V., SHEWELL, G. E., TESKEY, H. J., VOCKEROTH, J. R. & WOOD, D. M. (Coordinators). Manual of Nearctic Diptera, Volume 1. *Research Branch, Agriculture Canada. Monograph* 27: 1-674.

MCALPINE, J. F. 1987. Chamaemyiidae (pp. 965-971). In: MCALPINE, J. F., PETERSON, B. V., SHEWELL, G. E., TESKEY, H. J., VOCKEROTH, J. R. & WOOD, D. M. (Coordinators). Manual of Nearctic Diptera, Volume 2. *Research Branch, Agriculture Canada. Monograph* 28: 675-1332.

RASPI, A. 1983a. Contributi alla conoscenza dei Ditteri Camemiidi. II. Note etologiche e morfologiche su *Leucopis interruptovittata* Aczél, *Chamaemyia flavipalpis* (Haliday) e *Parochthiphila coronata* (Loew) (Diptera, Chamaemyiidae) della Toscana litoranea. *Frustula Entomologica*, n.s. VI (XIX): 103-139.

RASPI, A. 1983b. Contributi alla conoscenza dei Ditteri Camemiidi. III. Considerazioni sulla *Leucopis palumbi* Rondani e descrizione di *Leucopis gloriae* n.sp. *Frustula Entomologica*, n.s. VI (XIX): 351-367.

RASPI, A. 1985. Contributi alla conoscenza dei Ditteri Camemiidi. IV. Su due specie del genere *Leucopis* (Diptera, Chamaemyiidae) predatrici di *Aphis fabae* Scop.: *Leucopis fiorii* n. sp. e *Leucopis glyphinivora* Tanas. *Frustula Entomologica*, n.s. VII-VIII: 477-485.

RASPI, A. 1988. Contributi alla conoscenza dei Ditteri Camemiidi. V. Su alcune specie del genere *Leucopis* viventi a spese di afidi eriosomatidi. *Frustula Entomologica*, n.s. XI (XXIV): 75-118.

RASPI, A. 1995. Famiglia Chamaemyiidae (pp. 6-7). In: NARTSHUK, E. P., PAPP, L., RASPI, A. & RIVOSECHI, L. 73. Diptera Nerioidae, Diopsoidae, Lauxanioidea. In: MINELLI, A., RUFFO, S. & LA POSTA, S. (eds), Checklist delle specie della fauna italiana, Calderini, Bologna, 8 pp.

RASPI, A. 1996. *Thaumatomyia elongatula* (Beker) (Chloropidae) and *Leucopis annulipes* Zetterstedt (Chamaemyiidae): two Diptera preying on *Phloeomyzus passerinii* (Signoret) (Homoptera: Phloeomyzidae) in Italy. *Proceedings of the Entomological Society of Washington* 98(3): 509-516.

RASPI, A. 2003. On the identity of *Leucopis* (L.) *bursaria* and description of a new species: *Leucopis* (L.) *spyrothecae* (Diptera Chamaemyiidae). *Bollettino della Società Entomologica Italiana* 135 (2):101-108.

RASPI, A. 2005. *Leucopis* (*Xenoleucopis*) *rajabimazhari*, new species from Iran. (Diptera Chamaemyiidae). *Bollettino della Società Entomologica Italiana* 137 (3): 219-222.

RASPI, A. 2006. On the identity of *Parochthiphila (Euestelia) frontella* (Diptera Chamaemyiidae). *Bollettino della Società Entomologica Italiana* 138 (3): 249-254.

RASPI, A. 2008. Order Diptera, Family Chamaemyiidae (pp. 662-665). In: VAN HARTEN, A. (ed.). Arthropod Fauna of the United Arab Emirates. Volume 1. *Dar Al Ummah Printing, Publishing, Distribution & Advertising, Abu Dhabi*, 754 pp.

RASPI, A. & BERTOLINI, L. 1993. Contributions to knowledge of Diptera Chamaemyiidae. VI. Etiological and morphological notes on *Leucopis (Leucopomyia) silesiaca* Egger and *Leucopis (Leucopomyia) alticeps* Czerny. *Frustula Entomologica*, n. s. XVI (XXIX): 119-132.

RASPI, A. & EBEJER, M. J. 2008. New records of Diptera Chamaemyiidae from the Mediterranean and Oman with a description of a new species: *Parochthiphila (Euestelia) argentiseta* from Turkey and a redescription of *Parochthiphila (Parochthiphila) inconstans* (Becker). *Entomologica Fennica* 19: 55-64.

RONDANI, C. 1874. Species italicae ordinis Dipterorum. Stirps XXII Loncheinae Rndn. *Bullettino della Società Entomologica Italiana. Firenze*. Anno sesto, trimestre IV: 243-274.

TANASIUTSHUK, V. N. 1986. Diptera, Chamaemyiidae. Volume 14(7). In: Fauna of the URSS (n.s), n 134. *Nauka, Leningrad*, 1-335 pp + 1-16 pls. (In Russian).

TANASIUTSHUK, V. N. 1996. Silver-flies (Diptera, Chamaemyiidae) of Australia. *International Journal of Dipterological Research* 7 (1): 1-62.

TANASIUTSHUK, V. N. 1997. A new Holarctic genus of Chamaemyiidae (Diptera). *International Journal of Dipterological Research* 8: 113-116.

Contributi al riordinamento sistematico dei Peritelini w-paleartici (Coleoptera, Curculionidae, Entiminae).

VIII. Sintesi delle conoscenze al 31 dicembre 2010

Helio PIEROTTI

Strada di Selvana, n.1 I-31100 Treviso. E-mail: peritelus@yahoo.it

Contribution to the systematic rearrangement of the west-palaearctic Peritelini (Coleoptera, Curculionidae, Entiminae). VIII. Synthesis of the knowledge up to December 31, 2010. - A synthesis of the knowledge of the distribution and taxonomy of west-palaearctic Peritelini is updated up to December 31, 2010. Data on biology, ecology, and ethology are also reported. A key to the genera and a list of all known species are provided as well as keys to species of poorly known groups. Photos of all type-species and drawings of the main taxonomic features are provided.

Contributi al riordinamento sistematico dei Peritelini w-paleartici (Coleoptera, Curculionidae, Entiminae). VIII. Sintesi delle conoscenze al 31 dicembre 2010. - Si dà conto in sintesi delle conoscenze dei Peritelini w-paleartici alla data del 31 dicembre 2010, definendo gli ambiti geografici e tassonomici qui considerati e riportando anche dati di biologia, ecologia, etologia e distribuzione. Viene fornita una tabella dei generi nonché, per ogni genere, l'elenco delle specie e, quando inedita o non aggiornata, la tabella delle specie. Le fotografie di tutte le specie tipo ed alcuni disegni di parti tassonomicamente significative corredano il lavoro.

Keywords: Coleoptera - Curculionidae - Entiminae - Peritelini - Western Palaearctic.

INTRODUZIONE

Con un titolo analogo (“Present Knowledge of Palaearctic Peritelini”), Cesare Bellò ed io presentammo nel 1996, al XX. Congresso Internazionale di Entomologia di Firenze, un contributo (Pierotti & Bellò, 1998) necessariamente assai scarno e che, nonostante l’abbastanza breve tempo trascorso, si rivela già per molti aspetti superato.

Quantunque restino tuttora irrisolti i problemi relativi, da un lato, ad una soddisfacente caratterizzazione della Tribù rispetto agli Otiorhynchini e, d’altro lato, al rapporto tra i generi *Heteromeira* Solari, 1955 e *Leptosphaerotus* Seidlitz, 1865 sensu lato (problematiche che peraltro, dato il carattere prevalentemente riepilogativo anche del presente lavoro, non possono evidentemente essere affrontati in questa sede), non sembra quindi inutile fare il punto sullo stato delle conoscenze sui Peritelini w-paleartici, sia pure assumendone, ai fini del presente lavoro, una particolare definizione e stabilendo per comodità al 31 dicembre 2010 la data ultima di riferimento, dal

momento che già a quella data, rispetto al catalogo del 1996, erano stati individuati e descritti altri sei nuovi generi e sessantasei nuove specie, mentre diverse altre specie erano state trasferite da un genere all'altro. Successivamente alla data sopra indicata, comunque, altre specie sono già state descritte, di altre la descrizione è in corso di stampa ed altre ancora sono state già individuate.

METODI

Dopo la determinazione degli ambiti geografico e tassonomico del presente lavoro ed un breve riepilogo delle attuali conoscenze sulla biologia, sull'ecologia, sull'etologia e sulla distribuzione dei Peritelini w-paleartici, viene qui proposta una tabella dei generi, corredata da alcuni disegni di parti anatomiche tassonomicamente significative.

Successivamente e sempre con riferimento ai generi presi in considerazione nella Tabella, vengono riportati, per ciascun genere, la specie tipo e l'elenco delle specie ascritte ad esso, con indicazione delle rispettive regioni di provenienza, nonché, per i generi diversi da *Leptosphaerotus* (una revisione del quale, per il motivo sopra accennato, resta rinviata a successivi contributi), ulteriori indicazioni, e precisamente:

- per tutti i generi, la tabella delle specie, quando precedentemente inedita o non aggiornata;
- per i generi oggetto di precedente revisione, come pure per le specie oggetto di precedente ridefinizione dettagliata o di precedente illustrazione di parti anatomiche, il relativo riferimento bibliografico;
- per alcuni generi (*Meira* Jacquelin du Val, 1852, *Pseudomeira* Stierlin, 1881 ed *Heteromeira* F. Solari, 1955), le tabelle evidenziano anche i gruppi di specie che si possono individuare tra l'altro in base alla conformazione di alcune strutture degli apparati genitali (armature del sacco interno del pene nei maschi, gono-coxiti nelle femmine).

I riferimenti bibliografici relativi alla parte sistematica sono limitati ai lavori pubblicati dal 1950, oltre alla prima revisione (Hustache, 1935) del genere *Leptosphaerotus*.

AMBITI TASSONOMICO E GEOGRAFICO CONSIDERATI

Per quanto concerne l'esatta definizione e conseguentemente l'ambito della Tribù qui considerata, in particolare nei suoi rapporti con la Tribù Otiorhynchini, va subito precisato che essi sono tuttora estremamente incerti. Secondo la maggior parte degli Autori (tra i più recenti Anderson, 2002), infatti, i Peritelini si caratterizzerebbero per avere, a differenza degli Otiorhynchini, unghie connate, mentre per altri Autori la loro peculiarità consisterebbe nel presentare "scrobo scavato tutto in profondità perpendicolare nel corpo del rostro, completamente dorsale e totalmente visibile dall'alto" (così Solari, 1955). La prima tesi, tuttavia, oltre a fondarsi su un carattere per lo più poco significativo, non dà conto, in ambito europeo, dell'indubbia affinità tra i generi *Simo* e *Pseudosimo* e, a livello mondiale, vi riconduce generi che null'altro sembrano avere in comune tra loro; la seconda tesi, se presenta l'indubbio merito di avvicinare generi che presentano unghie connate ad altri ad unghie libere (*Simo*, *Ripetulus*,

Simopsis), deve coerentemente annoverare tra i Peritelini anche *Parameira* e *Meiranella*, che sono invece ora concordemente attribuiti agli Otiorhynchini. Non sembra d' altra parte accettabile la soluzione – che si potrebbe definire “di compromesso” – proposta da Hoffmann (1950) per *Homorhythmus* (nunc *Simo* e *Simopsis*), di ricondurre i generi ad unghie libere ad una Tribù a sè stante. Da ultimo, non prendono posizione al riguardo Alonso-Zarazaga & Lyal (1999), ricomprensendo tra i Peritelini generi a scrobi completamente dorsali, a scrobi parzialmente laterali, ad unghie connate e ad unghie libere.

In tale situazione, è evidente che non può essere questa la sede per risolvere definitivamente e con valenza generale il dibattuto problema, potendosi invece solo proporre un criterio che – almeno nell’ambito geografico qui considerato – comprenda tutti i generi che presentano il maggior numero di caratteri comuni: scrobi dorsali, guance non solcate, dorso coperto di squame rotondeggianti o ellittiche e setole, omeri arrotondati o svaniti, femori mutici. Tale criterio, individuato nella struttura a simmetria bilaterale dell’armatura genitale del sacco interno del pene, viene qui adottato semplicemente come pratico discriminante, mentre una sua autonoma e più ampia validità potrebbe essere eventualmente riconosciuta solo a seguito di indagini che esulano evidentemente dai limiti del presente lavoro.

In base a tali premesse, i Peritelini appartenenti alla fauna europea e nord-africana, che costituiscono l’oggetto del presente lavoro, risultavano comprendere, al 31 dicembre 2010, 230 specie ed una sottospecie, raggruppate in 20 generi.

ELEMENTI DI BIOLOGIA, ECOLOGIA ED ETOLOGIA

Non si hanno prove che i Peritelini w-paleartici abbiano, almeno nella parte meridionale del loro areale, due generazioni annuali, mentre, almeno nella parte settentrionale, sembrano essere decisamente univoltini spesso svernanti; in ogni caso, la maggior parte si rinviene per lo più in primavera/estate, anche se alcune specie – appartenenti soprattutto ai generi *Meira* e *Dolichomeira* – sembrano piuttosto autunnali-invernali.

La partenogenesi sembra frequente in alcuni generi (*Simo*, *Meira*).

Attraverso omocromismi ed omomorfismi con l’ambiente i Peritelini realizzano spesso un mimetismo criptico, reso più efficace, in caso di necessità, dalla tanatosi.

Sono segnalati casi di predazione di Peritelini da parte di uccelli (averle) ed imenotteri (*Cerceris* sp.).

Valgono sostanzialmente per tutti i Peritelini w-paleartici le osservazioni di carattere generale riportate in Pierotti & Bellò (2000); e così, in particolare, ne vanno ricordate la xerotipicità (con l’eccezione di alcune specie di *Simo*) e la stenotipicità; poche infatti sono le specie a distribuzione più o meno ampia, mentre estremamente frequenti sono, in quasi tutti i generi, gli endemismi, talora estremamente accentuati (il che suggerirebbe l’opportunità di interventi protezionistici, sinora invece del tutto eccezionali).

La maggior parte dei Peritelini (*Simo*, *Peritelus*, *Centricnemus*, *Pseudomeira* partim, *Ripetelus*, *Lepretius*, *Simopsis* partim, *Euplister*, *Pseudoperitelus*) frequenta arbusti ed erbe, altri generi (*Meira* partim, *Gymnomorphus*, *Leptosphaerotus*, *Pseudomeira* partim, *Dolichomeira*, *Meirella*, *Leptomeira*, *Pseudosimo*, *Hetero* -

meiopsis, *Simopsis* partim) sono legati alla lettiera della macchia mediterranea ed altri ancora (*Meira* partim, *Borovecia*) prediligono quella della bassa vegetazione di quota; un genere, infine (*Troglorhythmus*), è costituito da specie adattate alla vita ipogea, anoftalme, che presentano notevoli affinità esoscheletriche con alcuni Otiorhynchini. Anche nell'ambito di uno stesso genere (ad esempio, *Simo*, *Meira* o *Pseudomeira*) si possono comunque rinvenire specie ad ampia valenza ecologica (da 150 a 2700 m).

Per quanto concerne l'alimentazione, si può ipotizzare una generale rizofagia delle larve, mentre gli adulti, anche in base all'esame del contenuto intestinale, sembrano tutti sostanzialmente filofagi e talora antofagi; peraltro, alcuni generi (*Meira*, *Dolichomeira*, *Heteromeira*, *Meirella*, *Leptomeira*, *Pseudosimo*, *Borovecia*, *Heteromeiopsis*) sembrano nutrirsi di foglie morte, mentre altri (*Simo*, *Peritelus*, *Centricnemus*, *Gymnomorphus*, *Ripetelus*, *Lepretius*, *Euplister*, *Pseudoperitelus*) di essenze vive; non si hanno comunque conferme recenti delle vecchie segnalazioni di danni alle colture. Dei generi qui considerati, solo *Pseudomeira* e *Simopsis* raggruppano attualmente specie dell'una e dell'altra preferenza alimentare, il che conferma le perplessità circa la rispettiva omogeneità dei due generi già evidenziate, quanto al secondo genere, in Pierotti & Bellò, 2006.

Le essenze frequentate dai Peritelini, per riparo od alimentazione, sono estremamente varie; ripari possono inoltre essere costituiti anche da pietre poco infossate, ammassi di foglie secche e di altri detriti vegetali, tronchi abbattuti. Peraltro, va segnalato che, anche se molte specie non sembrano legate ad una particolare pianta, ma eventualmente solo ad una particolare famiglia vegetale, molto frequentemente anche specie notoriamente polifaghe sembrano in ogni stazione esprimere una diversa spiccata stenofagia, quando non addirittura una diversa monofagia.

DISTRIBUZIONE

In ambito w-paleartico la presenza di Peritelini è stata segnalata pressoché in tutta Europa (al nord fino all'Inghilterra sud-orientale ed alla Svezia meridionale, ad est fino alla Polonia ed all'Ucraina – e da qui fino al Kazachstan – a sud dalle coste occidentali dell'Albania e della Grecia alla Spagna e ad ovest dalla foce del Guadalquivir alle coste atlantiche della Francia) e nell'Africa maghrebina (dalle coste orientali della Tunisia al Marocco nord-orientale), mentre lascia perplessi la mancanza di segnalazioni per l'arcipelago maltese. In definitiva, pur considerando che i dati disponibili non possono ritenersi omogenei e quindi definitivamente significativi, in quanto le ricerche non sono state condotte con la stessa cura nelle diverse aree geografiche, i paesi – considerati nei loro attuali confini politici - di gran lunga più ricchi di specie risultano essere l'Italia (con 13 generi e 112 specie), la Francia (con 14 generi, 49 specie ed una sottospecie), l'Algeria (con 6 generi e 40 specie) e la Spagna (con 9 generi e 35 specie).

SISTEMATICA

TABELLA DEI GENERI DI PERITELINI W-PALEARTICI (sensu ut supra)

1a	Rostro in visione dorsale delimitato all'apice da un robusto cèrcine davanti alla base di tutto il bordo anteriore dello pterigio (Fig. 1). Protibie all'apice distintamente allargate	2
1b	Rostro in visione dorsale delimitato all'apice dal bordo anteriore dello pterigio (Fig. 2), talora con un breve accenno di cèrcine sul prolungamento del bordo laterale dell'epistoma. Protibie all'apice allargate, diritte o smussate sul margine esterno	6
2a	Protibie all'apice con un lobo evidente munito di tre spine (Fig. 10). Pterigi nulli	III. <i>Centricnemus</i> Germar, 1827
2b	Protibie all'apice semplicemente allargate	3
3a	Epistoma incavato. Sacco interno del pene con armatura genitale a lamina dorsale fortemente allargata in avanti, lunga più o meno quanto il corpo dell'armatura	II. <i>Peritelus</i> Germar, 1824
3b	Epistoma non incavato, anche se talora a bordi rialzati. Pene con armatura genitale a lamina dorsale di forma diversa, ovvero eccezionalmente assente	4
4a	Unghie libere. Corbule chiuse	VIII. <i>Ripetelus</i> F. Solari, 1950
4b	Unghie connate	5
5a	Pterigi nulli o appena salienti. Fronte distintamente infossata al centro. Elitre globose, solo eccezionalmente (<i>setabensis</i>) un po' allungate, con la massima larghezza agli omeri. Sacco interno del pene ad armatura genitale con lamina dorsale alquanto stretta e lunga più o meno quanto il corpo dell'armatura o più corta. Gonocoxiti molto debolmente sclerificati	XIX. <i>Euplister</i> Pierotti, Bellò & Alonso-Zarazaga, 2010
5b	Pterigi evidenti. Fronte non o appena infossata al centro. Elitre ovali, solo eccezionalmente (<i>senex</i>) globose. Sacco interno del pene ad armatura genitale priva di lamina dorsale (<i>senex</i>) o con lamina dorsale distintamente più lunga del corpo dell'armatura. Gonocoxiti bene sclerificati	XX. <i>Pseudoperitelus</i> Pierotti, Bellò & Alonso-Zarazaga, 2010
6a	Unghie libere	7
6b	Unghie connate	9
7a	Rostro subquadrato o trasverso. Fronte non più alta del margine oculare. Propigidio al margine apicale subtroncato	XVII. <i>Simopsis</i> Pierotti & Bellò, 2006
7b	Rostro più lungo che largo. Fronte distintamente più alta del margine oculare. Propigidio della femmina al margine apicale lanceolato	8
8a	Occhi presenti. Rivestimento a squame embriate	I. <i>Simo</i> Dejean, 1821
8b	Occhi assenti. Rivestimento a squame rade	XVIII. <i>Troglorhythmus</i> Alziar & Lemaire, 2008
9a	Rostro appiattito dorsalmente ai lati del clipeo fin presso il margine oculare (Fig. 5)	10
9b	Rostro normalmente arrotondato ai lati del clipeo (Fig. 6)	11

10a Fronte non più alta del margine oculare. Pterigi molto sviluppati. Statura maggiore: 5,5-7,5 mm XIV. *Pseudosimo* Pierotti & Bellò, 1999

10b Fronte distintamente più alta del margine oculare. Pterigi non o appena salienti. Statura minore: 3,9-5,2 mm XVI. *Heteromeiopsis* Pierotti & Bellò, 2004

11a Solco clipeo-frontale svanito, per cui il clipeo non appare separato dalla fronte 12

11b Solco clipeo-frontale evidente, per cui il clipeo appare nettamente separato dalla fronte 15

12a Protibie all'apice distintamente allargate. Gonocoxiti molto allungati, subcilindrici. Corbule chiuse XII. *Lepretius* Pierotti & Bellò, 1997

12b Protibie all'apice smussate sul margine esterno, diritte o molto debolmente allargate 13

13a Unghie diseguali: la posteriore rudimentale, molto più corta di quella anteriore. Parte superiore con squame solitamente rade. Scleriti dell'ottavo sternite nel maschio bene sviluppati V. *Gymnomorphus* Seidlitz, 1865

13b Unghie subeguali. Scleriti dell'ottavo sternite nel maschio molto ridotti ... 14

14a Fronte decisamente infossata rispetto al vertice. Tegmen a manubrium brevemente esile, poi progressivamente dilatato fino al margine inferiore. Forma molto allungata, a lati subparalleli XV. *Borovecia* Pierotti & Bellò, 2001

14b Fronte non infossata rispetto al vertice. Tegmen a manubrium normalmente esile fin presso il margine inferiore. Forma solo raramente (specie siciliane) allungata, a lati subparalleli VII. *Pseudomeira* Stierlin, 1882 s.l.

15a Pretarsi distintamente ricurvi ed ingrossati dalla base verso l'apice. Corpo allungato. Statura mediamente maggiore (2,5-5,7 mm) 16

15b Pretarsi subbetti, non o indistintamente ingrossati dalla base verso l'apice. Corpo più corto. Epistoma non incavato. Statura mediamente minore (1,8-3,8 mm) 17

16a Epistoma non incavato. Rostro ristretto alla base. Scrobi prolungati in addietro fin presso gli occhi IX. *Dolichomeira* F. Solari, 1955

16b Epistoma incavato. Rostro ristretto davanti alla base. Scrobi lontani dagli occhi .. VI. *Leptosphaerotus* Seidlitz, 1865 s.l., X. *Heteromeira* F. Solari, 1955

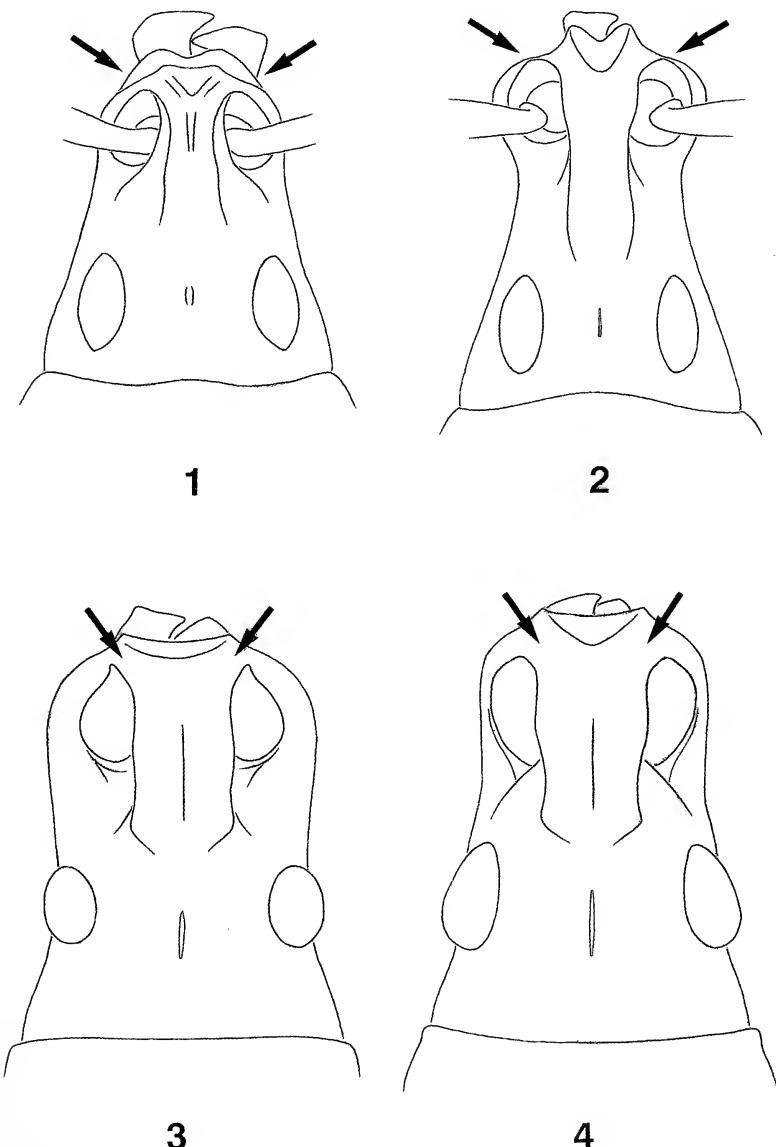
17a Funicolo antennale robusto, non o poco più stretto dello scapo e della clava. Gonocoxiti privi di setole, nella porzione anteapicale bruscamente assottigliati (Fig. 8) o affusolati e più sclerificati (Fig. 9) IV. *Meira* Jacquel du Val, 1852

17b Funicolo antennale esile, nettamente più stretto dello scapo e della clava. Gonocoxiti muniti di setole, subtriangolari, poco sclerificati (Fig. 7) 18

18a Dorso con squame abbastanza fitte, anche se talora non o debolmente embriicate, quasi piatte. Epistoma poco avanzato rispetto al bordo anteriore degli alveoli antennali (Fig. 3). Corpo corto. Statura mediamente inferiore XI. *Meirella* Pierotti & Bellò, 1997

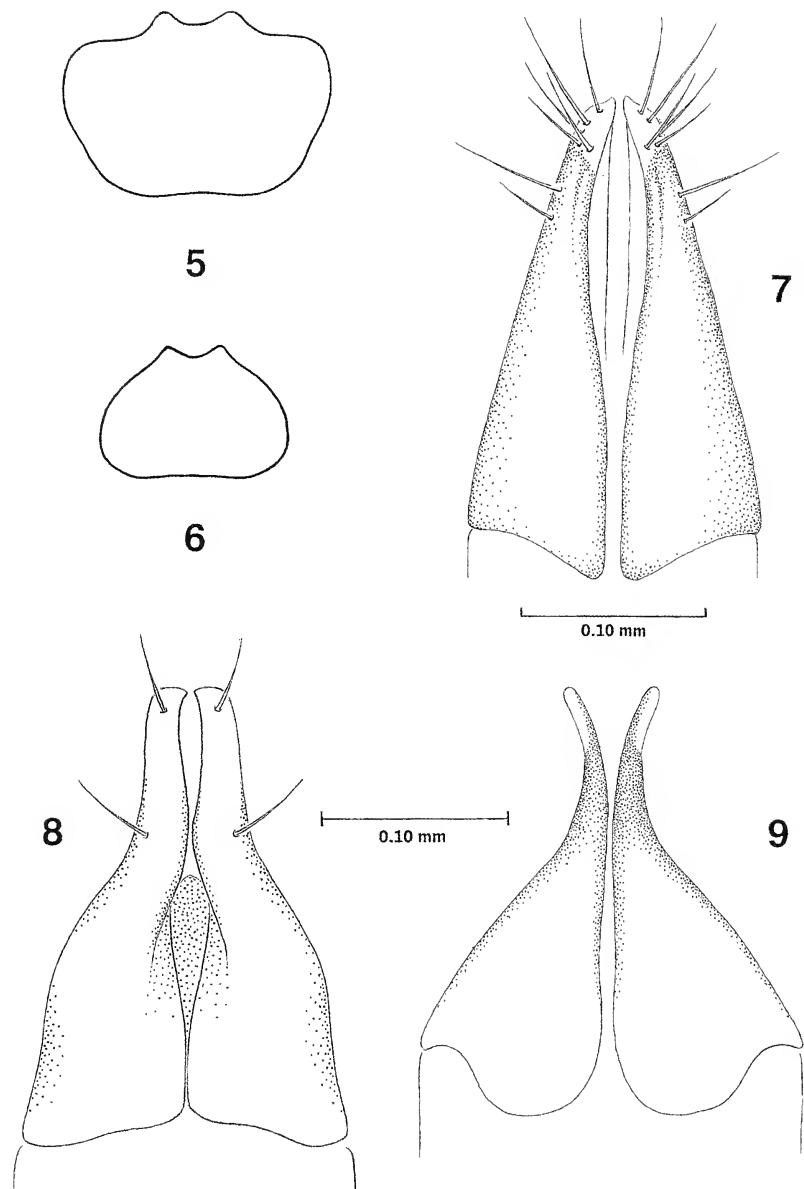
18b Dorso con squame rade, convesse. Epistoma molto avanzato rispetto al bordo anteriore degli alveoli antennali (Fig. 4). Corpo allungato. Statura mediamente superiore XIII. *Leptomeira* Pierotti & Bellò, 1997

Relativamente al rapporto *Heteromeira* – *Leptosphaerotus*, va tenuto presente che il primo genere è ben distinto dalla specie tipo del secondo (*Otiorhynchus aquilus* Chevrolat), mentre le altre specie attualmente ascritte a quest'ultimo – inteso sensu Hustache, 1935 – presentano caratteri spesso assai diversi tra loro, che suggeriscono la necessità di uno smembramento del raggruppamento attuale e della conseguente ridefinizione del genere.



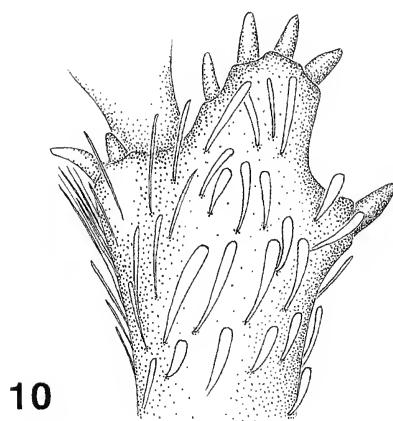
FIGS 1-4

Capo in visione dorsale (schematico). (1) Id. di *Euplister susanae* (Seidl.). (2) Id. di *Simo hirticornis* (Herbst). (3) Id. di *Meirella suturella* (Fairm.). (4) Id. di *Leptomeira squamulata* (Reiche).



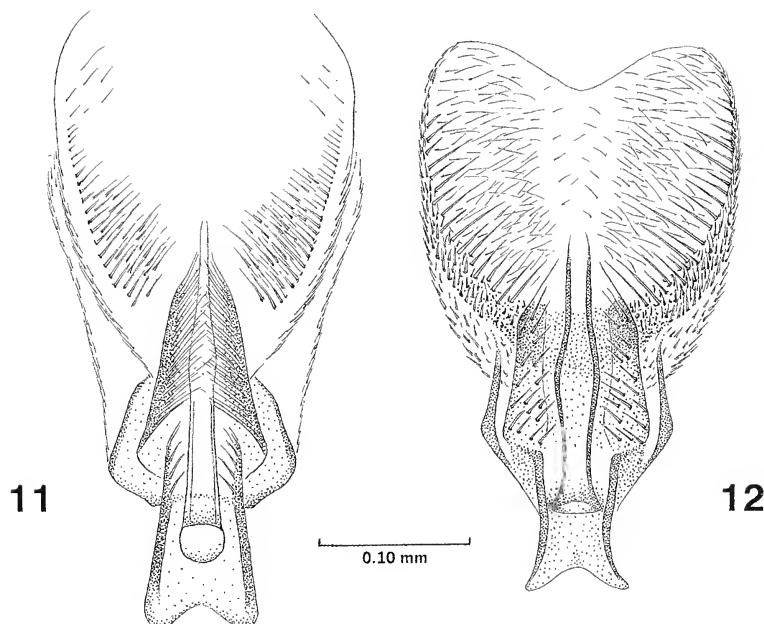
FIGS 5-9

(5) Capo in sezione presso la base del rostro (schematico) di *Pseudosimo juniperi* (Desbr.). (6) Id. di *Dolichomeira melonii* Pierotti & Bellò. (7) Gonocoxiti in visione dorsale di *Meirella suturella* (Fairm.). (8) Id. di *Meira baudii* Stierlin. (9) Id. di *Meira vauclusiana* Desbr.



10

0.15 mm



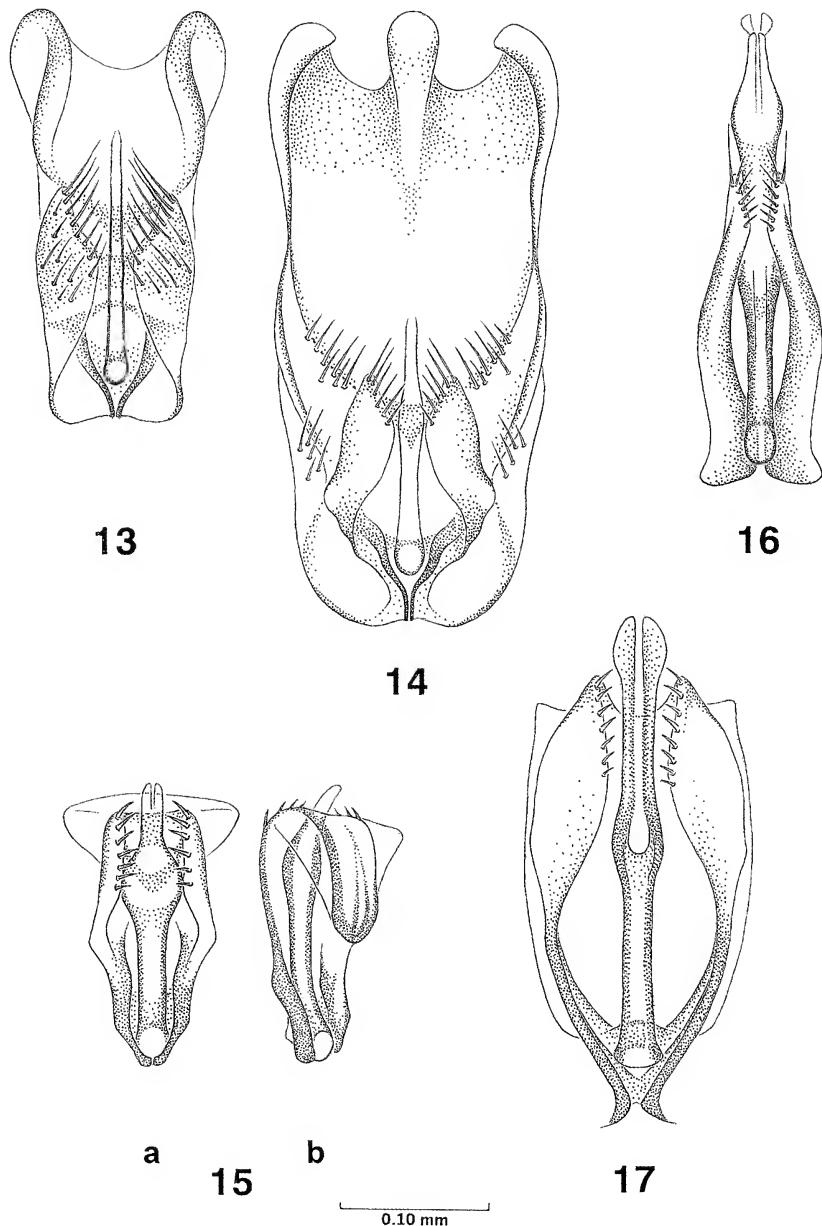
11

12

0.10 mm

FIGS 10-12

(10) Apice della protibia destra di *Centricnemus leucogrammus* (Germ.). (11) Armatura genitale del sacco interno del pene di *Pseudomeira necessaria* (Gyll.) in visione ventrale. (12) Id. di *Ps. rustica* (Boh.).



FIGS 13-17

Armatura genitale del sacco interno del pene (13) di *Pseudomeira parvula* (Seidl.) in visione ventrale. (14) Id. di *Ps. sardoa* (Costa). (15a) Id. di *Ps. echidna* (Seidl.). (15b) Id. di *Ps. echidna* (Seidl.) di tre quarti in visione dorsale. (16) Id. di *Ps. exigua* (Stierl.) in visione ventrale. (17) Id. di *Ps. tunicensis* (Desbr.).

DISCUSSIONE

I. Gen. *Simo* Dejean, 1821

SPECIE TIPO: *Curculio hirticornis* Herbst, 1795 (Foto 1).

NOTE GENERALI: Revisione del genere in Pierotti & Bellò (2006: 31-41).

NOTE DI ECOLOGIA: Le specie sono state raccolte su o ai piedi di aquifoliacee (*Ilex*), betulacee (*Alnus*, *Betula*), corilacee (*Carpinus*, *Corylus*), ericacee (*Erica*, *Vaccinium*), fagacee (*Fagus*), lorantacee (*Viscum*), oleacee (*Fraxinus*, *Syringa*), pinacee (*Abies*, *Larix*, *Pinus*), rosacee (*Crataegus*, *Prunus*), salicacee (*Populus*, *Salix*), tiliacee (*Tilia*), vitacee (*Vitis*) e nelle Alpi Marittime a più riprese anche all'interno di grotte (Alziari & Lemaire, 2008).

SPECIE ASCRITTE:

1. *hirticornis* (Herbst, 1795): Polonia sud-occ., Svezia merid., Danimarca, Olanda, Lussemburgo, Germania, Cekia, Austria, Slovacchia, Croazia, Serbia, Grecia nord-occ., Italia sett., Svizzera, Corsica, Francia centro-or. e merid., Spagna sett.
2. *variegatus* (Bohemian, 1843): Polonia sud-or., Danimarca, Lussemburgo, Germania, Cekia, Ungheria, Austria, Slovacchia, Serbia, Grecia sud-or., Italia sett. e centr., Svizzera, ?Corsica, Francia centro-or. e sud-or.
3. *grandis* (Desbrochers, 1888): Campania, Sicilia.
4. *kabilianus* (Pic, 1896): Algeria.

II. Gen. *Peritelus* Germar, 1824

SPECIE TIPO: *Peritelus sphaeroides* Germar, 1824 (Foto 2)

NOTE GENERALI: Ridescrizione del genere in Pierotti & Bellò, 1998: 84; peraltro, delle specie ivi ascritte a questo genere, *senex* Boheman, *globulicollis* Seidlitz, *espanoli* Roudier e *lopezi* Hoffmann costituiscono ora il gen. XIX. *Pseudoperitelus* Pierotti, Bellò & Alonso-Zarazaga, 2010, insieme a *ruficornis* Brisout, più recentemente (Pierotti, 2010.a) trasferitovi; *susanae* Seidlitz, *hybridus* Seidlitz e *setabensis* Hustache sono stati ricompresi nel gen. XVIII. *Euplister* Pierotti, Bellò & Alonso-Zarazaga, 2010, cui viene qui aggiunto *magnicollis* Desbrochers; *coniceps* Desbrochers è stato recentemente (Pierotti, 2010b) trasferito al gen. XII. *Lepretius* Pierotti & Bellò, 1997; infine, *sinuatus* Chevrolat, *pici* Desbrochers e *biimpressus* Hustache vengono qui trasferiti al gen. VII. *Pseudomeira* Stierlin, 1881.

NOTE DI ECOLOGIA: Le specie sono state raccolte su o ai piedi di araliacee (*Hedera*), betulacee (*Betula*), buxacee (*Buxus*), chenopodiacee (*Beta*), cistacee (*Cistus*), composite (*Artemisia*), corilacee (*Carpinus*, *Corylus*), cupressacee (*Juniperus*), ericacee (*Erica*), fagacee (*Fagus*, *Quercus*), leguminose (*Astragalus*, *Cytisus*, *Dorycnium*, *Genista*, *Ulex*), moracee (*Morus*), oleacee (*Syringa*), pinacee (*Pinus*), poligonacee (*Rumex*), rosacee (*Crataegus*, *Cydonia*, *Malus*, *Mespilus*, *Prunus*, *Pyrus*, *Rosa*, *Rubus*), salicacee (*Populus*, *Salix*), tamaricacee (*Tamarix*), ulmacee (*Ulmus*), vitacee (*Vitis*).



FOTO 1

Habitus delle specie tipo dei generi di Peritelini paleartici:
Simo hirticornis (Herbst) maschio di Quargnento (Alessandria, Italia); lungh. 5 mm.



FOTO 2

Habitus delle specie tipo dei generi di Peritelini paleartici:
Peritelus sphaeroides Germar maschio di St. Geniès-de-Comolas (Gard, Francia); lungh. 4,5 mm.

SPECIE ASCRITTE:

1. *sphaerooides* Germar, 1824: ?Siberia, Russia, Europa or., Italia nord-occ., Svizzera, Olanda, Francia, ?Algeria; importato in America sett. Ridescrizione in Pierotti *et al.* (2010: 12).
2. *familiaris* Boheman, 1863: Kazakhstan, Polonia, Russia merid., Romania, Ucraina, Cekia, Slovacchia, Ungheria, Bulgaria, Serbia, Austria
3. *confusus* Pierotti, 2006: Tunisia.

TABELLA DELLE SPECIE.

1a	Fronte incavata dai margini laterali fino al centro. Forma più breve e globosa	<i>familiaris</i>
1b	Fronte non o brevemente infossata al centro. Forma alquanto più slanciata . . .	2
2a	Funicolo antennale e setole elitrali esili. Pettine di spinule apicali delle tibie posteriori rivolto verso l'interno	<i>sphaerooides</i>
2b	Funicolo antennale e setole elitrali robusti. Pettine di spinule apicali delle tibie posteriori rivolto verso l'esterno	<i>confusus</i>

III. Gen. *Centricnemus* Germar, 1827

SINONIMO: *Ctenochirus* Seidlitz, 1890.

SPECIE TIPO: *Peritelus leucogrammus* Germar, 1824 (Foto 3)

NOTE GENERALI: Genere monotipico. La ridecrizione dell'unica specie in Hoffmann, 1950: 168, ancorché l'Autore francese la confermi appartenere a *Peritelus*, può essere validamente assunta per il genere, la cui validità è stata recentemente confermata dall'analisi citogenetica (Lachowska *et al.*, 2006).

NOTE DI ECOLOGIA: La specie è stata raccolta su o ai piedi di celastracee (*Euonymus*), cistacee (*Helianthemum*), composite (*Achillea*, *Artemisia*, *Hieracium*), crucifere (*Isatis*), labiate (*Salvia*), leguminose (*Anthyllis*, *Coronilla*, *Cytisus*, *Medicago*), oleacee (*Syringa*), ranuncolacee (*Anemone*), rosacee (*Crataegus*, *Potentilla*, *Pyrus*).

SPECIE ASCRITTE:

1. *leucogrammus* (Germar, 1824): Siberia merid., Russia, Polonia, Ungheria, Slovacchia, Cekia, Grecia, Slovenia, Croazia, Austria, Svizzera or., Germania merid., Olanda, Francia or. (Strasburgo); un tempo segnalato per l'Italia del Piemonte e della Lombardia.

IV. Gen. *Meira* Jacquelin du Val, 1852

SPECIE TIPO: *Meira crassicornis* Jacquelin du Val, 1852 (Foto 4)

NOTE GENERALI: Ridescrizione del genere in Pierotti & Bellò (1998: 86).

NOTE DI ECOLOGIA: Le specie sono state raccolte su o ai piedi di anacardiacee (*Pistacia*), chenopodiacee (*Beta*), cistacee (*Cistus*), crassulacee (*Sedum*), euforbiacee (*Euphorbia*), fagacee (*Quercus*), globulariacee (*Globularia*), labiate (*Thymus*), leguminose (*Genista*, *Lotus*), oleacee (*Olea*), primulacee (*Vitaliana*), rosacee (*Malus*), oltreché ai piedi di diverse graminacee, felci, muschi e licheni.



FOTO 3

Habitus delle specie tipo dei generi di Peritelini paleartici:
Centricnemus leucogrammus (Germar) di Pavlovské vrchy (Moravia, Cekia); lungh. 3,1 mm.



FOTO 4

Habitus delle specie tipo dei generi di Peritelini paleartici:
Meira crassicornis Jacquelin du Val maschio di Roquemaure (Gard, Francia); lungh. 2,9 mm.

SPECIE ASCRITTE:

1. *crassicornis* Jacquelin du Val, 1852: Francia merid.
2. *baudii* Stierlin, 1892: Italia centr.
3. *vauclusiana* Desbrochers, 1898: Francia merid.
4. *stierlini* Sainte-Claire Deville, 1906: Italia nord-occ. (Liguria), Francia sud-or.
5. *fagniezi* Desbrochers, 1908: Francia merid.
6. *straneoi* F. Solari, 1955: Italia centr.
7. *lavagnei* Pierotti & Bellò, 1992: Francia merid.
8. *gerundana* Pierotti, Bellò & Alonso-Zarazaga, 2010: Spagna sett.
9. *medae* Pierotti, Bellò & Alonso-Zarazaga, 2010: Spagna sett. (is. Medas).
10. *tarraconensis* Pierotti, 2010: Spagna sett.
11. *moraguesi* Pierotti & Rouault, 2010: Francia merid.
12. *perezi* Pierotti & Rouault, 2010: Francia merid.

TABELLA DELLE SPECIE:

1a	Gonocoxti nella porzione antepicale solo bruscamente ristretti, con apici alquanto convergenti sul margine interno, puntuti o arrotondati (Fig. 8) (Italia, Francia sud-occ. e sud-or., Spagna nord-or.). Gruppo <i>baudii</i>	2
1b	Gonocoxti nella porzione antepicale più o meno strettamente assottigliati, con apici per lo più divaricati (Fig. 9). Occhi subarrotondati (Francia merid.). Gruppo <i>crassicornis</i>	7
2a	Elitre sui fianchi e sul dorso con setole appiattite, molto brevi, indistinte (Italia centr.: Abruzzo)	<i>straneoi</i>
2b	Elitre sui fianchi e sul dorso con setole semierette, reclinate od abbattute, sempre distinte	3
3a	Occhi subarrotondati (Francia merid., Spagna nord-or.)	4
3b	Occhi distintamente ovali (Francia sud-or., Italia centr.)	6
4a	Elitre con setole erette. Penne a profilo subtriangolare nella porzione apicale (Spagna nord-or.: Is. Medas)	<i>medae</i>
4b	Elitre con setole semierette, reclinate, abbattute od appiattite	5
5a	Elitre sulla declività posteriore con setole reclinate o sollevate. Penne a profilo subtriangolare nella regione apicale (Francia merid.)	<i>lavagnei</i>
5b	Elitre anche sulla declività posteriore con setole abbattute. Penne a profilo amigdaliforme nella porzione apicale (Spagna nord-or.)	<i>tarraconensis</i>
6a	Clipo gibboso. Elitre con setole poco evidenti sul dorso, brevi e squame che spesso formano macchie più chiare. Pterigi salienti. Penne a profilo scutiforme nella regione apicale e sacco interno privo di armature supplementari (Francia sud-or.: Nizzardo)	<i>stierlini</i>
6b	Clipo normalmente ricurvo. Elitre con setole sollevate. Penne largamente scutiforme nella porzione apicale (Lazio)	<i>baudii</i>
7a	Elitre con setole erette o semierette	8
7b	Elitre con setole sollevate, reclinate od abbattute	9
8a	Funicolo antennale molto robusto, il settimo articolo più di due volte più largo che lungo. Elitre con lunghe setole erette. Penne a profilo subarrotondato nella porzione apicale	<i>crassicornis</i>

8b Funicolo antennale poco robusto, il settimo articolo meno di due volte più largo che lungo. Elitre con setole semierette, più brevi. Penne a profilo scutiforme nella porzione apicale *perezi*

9a Funicolo antennale robusto, il settimo articolo almeno due volte più largo che lungo. Penne a profilo largamente arrotondato nella porzione apicale, un po' troncato all'apice *vauclusiana*

9b Funicolo antennale poco robusto, il settimo articolo meno di due volte più largo che lungo 10

10a Elitre sui fianchi con setole non o poco incurvate. Penne a profilo subtricuspidato nella porzione apicale *fagniezi*

10b Elitre sui fianchi con setole distintamente incurvate. Penne subtroncate all'apice *moraguesi*

V. Gen. *Gymnomorphus* Seidlitz, 1865

SPECIE TIPO: *Peritelus nigrans* Fairmaire, 1862 (Foto 5)

NOTE GENERALI: Ridescrizione del genere in Pierotti & Bellò (1998: 87); tabella delle specie in Pierotti *et al.* (2010: 16).

NOTE DI ECOLOGIA: Le specie sono state raccolte su o ai piedi di buxacee (*Buxus*), labiate (*Teucrium*, *Thymus*), leguminose (*Genista*).

SPECIE ASCRITTE:

1. *nigrans* (Fairmaire, 1862): Francia mer., Spagna nord-or. Ridescrizione in Pierotti *et al.* (2010: 16).
2. *mononychus* (Seidlitz, 1865): Spagna or. Ridescrizione in Pierotti *et al.* (2010: 16).

VI. Gen. *Leptosphaerotus* Seidlitz, 1865

SPECIE TIPO: *Otiorhynchus aquilus* Chevr., 1860 (Foto 6)

NOTE GENERALI: Revisione in Hustache (1935: 200-247); peraltro, *minor* (Pic) e *longior* (Pic) sono stati trasferiti al gen. IX. *Dolichomeira* Solari da Pierotti & Bellò, 2000.

NOTE DI ECOLOGIA: Le poche specie di cui si hanno dati sono state raccolte ai piedi di fagacee (*Quercus*) e oleacee (*Olea*).

SPECIE ASCRITTE:

1. *muricatus* (Chevrolat, 1860): Tunisia, Algeria.
2. *intersetosus* (Chevrolat, 1860): Algeria.
3. *aquilus* (Chevrolat, 1860): Tunisia, Algeria.
4. *gracilis* (Chevrolat, 1861): Algeria.
5. *setuliferus* (Desbrochers, 1870): Algeria.
6. *latithorax* (Desbrochers, 1870): Algeria.
7. *edoughensis* (Desbrochers, 1875): Algeria.
8. *subconiceps* (Desbrochers, 1892): Tunisia, Algeria.
9. *fallaciosus* (Desbrochers, 1895): Algeria.
10. *setulosus* (Desbrochers, 1896): Tunisia, Algeria.
11. *rudicollis* (Desbrochers, 1896): Algeria.



FOTO 5

Habitus delle specie tipo dei generi di Peritelini paleartici:
Gymnomorphus nigrans (Fairmaire) di Monze (Aude, Francia); lungh. 4,4 mm.

12. *rubripes* (Desbrochers, 1897): Tunisia, Algeria.
13. *peyerimhoffi* (Pic, 1907): Algeria.
14. *diversipennis* (Pic, 1908): Algeria.
15. *testaceicornis* (Pic, 1908): Algeria.
16. *stagnalis* Hustache, 1935: Algeria.
17. *mixtus* Hustache, 1935: Algeria.
18. *intermedius* Hustache, 1935: Algeria.
19. *normandi* Hustache, 1935: Algeria.
20. *simoni* Hustache, 1935: Algeria.
21. *humeralis* Hustache, 1935: Algeria.



FOTO 6

Habitus delle specie tipo dei generi di Peritelini paleartici:
Leptosphaerotus aquilus (Chevrolat) del Monte Edough (Annaba, Algeria); lungh. 5,5 mm.

22. *rufus* Hustache, 1935: Tunisia.
23. *moissoni* Hustache, 1935: Algeria.
24. *villosicollis* Hustache, 1935: Algeria.
25. *infuscatus* Hustache, 1935: Algeria.
26. *subcylindricus* Hustache, 1935: Algeria.
27. *obesus* Hustache, 1935: Algeria.
28. *delicatulus* Hustache, 1935: Algeria.
29. *conicirostris* Hustache, 1935: Tunisia.
30. *brevipennis* Hustache, 1935: Algeria.
31. *aureolus* Hustache, 1935: Algeria.
32. *lameyi* Hustache, 1935: Algeria.
33. *sordidus* Hustache, 1935: Algeria.
34. *agglutinatus* Hustache, 1935: Algeria.
35. *ruficolor* Pic, 1936: Algeria.
36. *granulosus* Hoffmann, 1953: Algeria.

VII. Gen. *Pseudomeira* Stierlin, 1882

SPECIE TIPO: *Pseudomeira nicaeensis* Stierlin, 1881 (Foto 7)

NOTE GENERALI: Ridescrizione del genere in Pierotti & Bellò (1998: 90).

NOTE DI ECOLOGIA: Le specie sono state raccolte su o ai piedi di anacardiacee (*Pistacia*), araliacee (*Hedera*), betulacee (*Alnus*), buxacee (*Buxus*), chenopodiacee (*Atriplex*), cistacee (*Cistus*), composite (*Artemisia*, *Centaurea*, *Helichrysum*), corilacee (*Corylus*), crucifere (*Cardamine*), cupressacee (*Juniperus*), ericacee (*Erica*), euforbiacee (*Euphorbia*), fagacee (*Castanea*, *Fagus*, *Quercus*), globulariacee (*Globularia*), labiate (*Nepeta*, *Rosmarinus*, *Thymus*), leguminose (*Acacia*, *Astragalus*, *Bituminaria*, *Calicotome*, *Ceratonia*, *Cytisus*, *Genista*, *Ononis*, *Spartium*, *Trifolium*, *Ulex*), liliacee (*Asphodelus*, *Smilax*), malvacee (*Malva*), mirtacee (*Myrtus*), oleacee (*Olea*), pinacee (*Pinus*), poligonacee (*Rumex*), rosacee (*Crataegus*, *Prunus*, *Rosa*, *Rubus*), umbellifere (*Bupleurum*), verbenacee (*Verbena*), oltreché ai piedi di diverse graminacee, felci, muschi. Nonostante la notevole varietà di essenze, peraltro, ogni specie sembra frequentare non più di due o tre famiglie botaniche.

SPECIE ASCRITTE:

1. *necessaria* (Gyllenhal, 1834): Francia mer. Ridescrizione in Pierotti *et al.* (2010: 29).
2. *rustica* (Kiesenwetter 1843): Francia. Ridescrizione in Pierotti *et al.* (2010: 30).
3. *rudis* (Boheman, 1843): Italia centr.
4. *adusticornis* (Kiesenwetter, 1851): Spagna nord-or. Ridescrizione in Pierotti *et al.* (2010: 19).
5. *prolixa* (Kiesenwetter, 1851): Francia sud-occ., Andorra, Spagna nord- e centro-or. Ridescrizione in Pierotti *et al.* (2010: 20).
6. *flavipennis* (Jacquelin du Val, 1852): Francia merid.
7. *sinuata* (Chevrolat, 1860) **comb. nov.**: Algeria.
8. *exigua* (Stierlin, 1861): Sicilia. Ridescrizione in Pierotti (2009b: 483)
9. *pfisteri* (Stierlin, 1864): Sicilia. Ridescrizione in Pierotti (2009b: 484).
10. *kiesenwetterii* (Seidlitz, 1865): Spagna merid. Ridescrizione in Pierotti *et al.* (2010: 21).
11. *parvula* (Seidlitz, 1865): Italia centr.
12. *echidna* (Seidlitz, 1865): Italia sett. e centr.
13. *grenieri* (Seidlitz, 1865): Francia sud-occ., Spagna nord-or. Ridescrizione in Pierotti *et al.* (2010: 23).
14. *gougeletii* (Seidlitz, 1865): Spagna merid. Ridescrizione in Pierotti *et al.* (2010: 22).
15. *insularis* (Desbrochers, 1871): Corsica. Ridescrizione in Pierotti & Bellò (2001a: 24).
16. *muscorum* (Desbrochers, 1871): Corsica. Illustrazione di apparato genitale in Pierotti & Bellò (1996: 537).
17. *foveithorax* (Desbrochers, 1874): Corsica. Illustrazione di apparato genitale in Pierotti & Bellò (1996: 538).
18. *nicaeensis* Stierlin, 1882: Francia sud-or. Illustrazione del pene in Solari (1955: 43).

19. *clairi* Stierlin, 1882: Italia nord-occ., Francia sud-or. Illustrazione del pene in Solari (1955: 43).
20. *tenuicornis* (Schaufuss, 1882): is. Baleari. Ridescrizione in Pierotti *et al.* (2010: 24).
21. *sardoa* (Costa, 1884): Sardegna. Illustrazione di apparato genitale in Pierotti & Bellò (1996: 533-534).
22. *tunicensis* (Desbrochers, 1892): Tunisia. Ridescrizione in Pierotti (2006: 26).
23. *vitalei* (Desbrochers, 1892): Sicilia. Illustrazione del pene in Solari (1955: 51).
24. *lostiae* (Desbrochers, 1892): Sardegna, Corsica. Ridescrizione in Pierotti & Bellò (2001a: 25).
25. *subsetosa* (Rey, 1894): Francia merid.
26. *pici* (Desbrochers, 1894) **comb. nov.**: Algeria.
27. *angulicollis* (Desbrochers, 1897): Tunisia. Ridescrizione in Pierotti (2006: 28).
28. *andreae* (Desbrochers, 1901): Italia sett.
29. *reitteri* (Vitale, 1903): Sicilia.
30. *quadraticollis* (Desbrochers, 1905): Spagna centro-or.
31. *obscura* (A. & F. Solari, 1907): Italia merid., Albania, Grecia, Sicilia. Illustrazione di apparati genitali in Pierotti & Bellò (1994a: 111).
32. *holdhausi* (A. & F. Solari, 1907): is. Elba.
33. *ligurica* (A. & F. Solari, 1907): Italia nord-occ.
34. *paganettii* (A. & F. Solari, 1907): Italia merid.
35. *silvestrii* (A. & F. Solari, 1907): Italia merid.
36. *inviridis* (Pic, 1908): is. Baleari. Ridescrizione in Pierotti *et al.* (2010: 26).
37. *ferdinandi* (Sainte-Claire Deville, 1914): Corsica. Ridescrizione in Pierotti & Bellò (2001a: 26).
38. *biimpressa* (Hustache, 1935) **comb. nov.**: Algeria.
39. *ochsi* F. Solari, 1955: Francia sud-or. Illustrazione del pene in Solari (1955: 43).
40. *robusticornis* F. Solari, 1955: Francia sud-or. Illustrazione del pene in Solari (1955: 43).
41. *mancinii* F. Solari, 1955: Italia centr.
42. *crassirostris* F. Solari, 1955: Italia merid. Illustrazione di apparato genitale in Pierotti & Bellò (1994a: 109).
43. *binaghii* F. Solari, 1955: Italia merid. Illustrazione di apparati genitali in Pierotti & Bellò (1992: 371).
44. *doderoi* F. Solari, 1955: Sicilia. Illustrazione di apparati genitali in Pierotti & Bellò (1994a: 114).
45. *transversicollis* F. Solari, 1955: Sardegna. Illustrazione di apparato genitale in Pierotti & Bellò (1995: 544).
46. *ruteri* (Péricart, 1963): Francia sud-or.
47. *solarii* (Péricart, 1963): Sicilia.
48. *incognita* Osella & Gregori, 1989: Sardegna. Illustrazione di apparato genitale in Pierotti & Bellò (1996: 544).
49. *sinuariae* Osella & Gregori, 1989: is. Asinara. Illustrazione di apparato genitale in Pierotti & Bellò (1996: 539).
50. *lucana* Bellò & Pierotti, 1992: Italia merid.
51. *apula* Bellò & Pierotti, 1992: Italia merid.

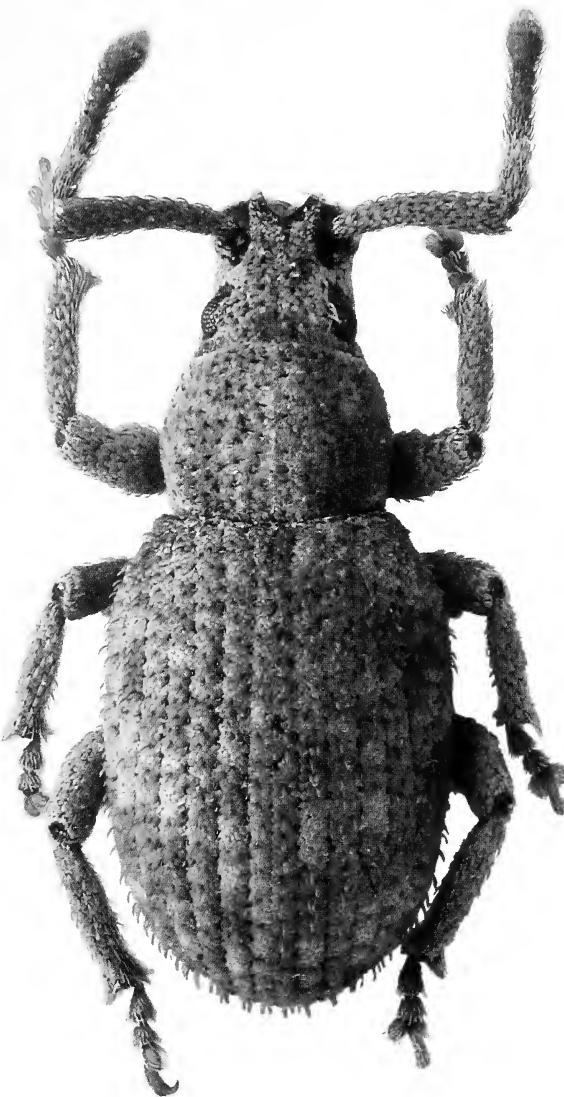


FOTO 7

Habitus delle specie tipo dei generi di Peritelini palearctici:
Pseudomeira niceaeensis Stierlin maschio di La Trinité (Alpes-Maritimes, Francia);
lung. 3,9 mm.

- 52. *meles* Bellò & Pierotti, 1992: Italia centr.
- 53. *pseudobscura* Bellò & Pierotti, 1992: Italia merid.
- 54. *alonsoi* Pierotti & Bellò, 1994: Spagna merid.
- 55. *cossyrica* Pierotti & Bellò, 1994: is. Pantelleria.
- 56. *obscurella* Pierotti & Bellò, 1994: Italia centr. e merid.
- 57. *osellai* Pierotti & Bellò, 1994: Sicilia.

58. *eleonorae* Pierotti & Bellò, 1996: Sardegna.
 59. *montisalbi* Pierotti & Bellò, 1996: Sardegna.
 60. *lei* Pierotti & Bellò, 1996: Sardegna.
 61. *inopinata* Pierotti & Bellò, 1996: Sardegna.
 62. *bartolii* Bellò, Pesarini & Pierotti, 1997: is. Gorgona.
 63. *aeolica* Bellò, Pesarini & Pierotti, 1997: is. Eolie.
 64. *virgo* Pierotti & Bellò, 2001: Corsica.
 65. *soror* Pierotti & Bellò, 2001: Corsica.
 66. *anachoreta* Meloni, Pierotti & Bellò, 2001: Sardegna.
 67. *fancelloi* Meloni, Pierotti & Bellò, 2001: Sardegna.
 68. *macrocephala* Meloni, Pierotti & Bellò, 2001: Sardegna.
 69. *kapleri* Pierotti & Bellò, 2004: Grecia.
 70. *behnei* Pierotti, 2006: Tunisia.
 71. *belloi* Pierotti, 2006: Tunisia.
 72. *stuebeni* Pierotti, 2006: Tunisia.
 73. *nebrodensis* Pierotti, 2009: Sicilia.
 74. *baetica* Pierotti *et al.*, 2010: Spagna merid.
 75. *eremita* Pierotti *et al.*, 2010: is. Maiorca.
 76. *levida* Pierotti *et al.*, 2010: Spagna centro-or.

TABELLA DELLE SPECIE:

1a	Fronte non o appena più alta del margine oculare, solitamente più o meno concava. Sacco interno del pene con armatura genitale a lamina dorsale molto sviluppata (Fig. 11). Specie più occidentali: Francia sud-occ.; Spagna; Algeria	2
1b	Fronte distintamente più alta del margine oculare. Specie più orientali: Grecia; Albania; Italia cont., Sicilia, Sardegna, Corsica; Francia; Tunisia	19
2a	Elitre con la massima larghezza in corrispondenza degli omeri, questi evidenti (specie baleariche). Gruppo <i>tenuicornis</i>	3
2b	Elitre con la massima larghezza dietro gli omeri, questi più o meno svaniti (specie extra-baleariche). Gruppo <i>necessaria</i>	5
3a	Occhi piccoli. Antenne più robuste: almeno il settimo articolo del funicolo moniliforme o trasverso. Colorazione terrea	<i>eremita</i>
3b	Occhi più grandi. Antenne più esili: anche il settimo articolo del funicolo allungato. Colorazione più chiara, spesso con riflessi dorati	4
4a	Protibie largamente smussate avanti l'apice. Elitre allungate, con setole alquanto più esili	<i>tenuicornis</i>
4b	Protibie brevemente smussate avanti l'apice. Elitre brevi, con setole un po' più robuste	<i>inviridis</i>
5a	Funicolo antennale con articoli progressivamente più larghi dal secondo al settimo, gli apicali distintamente trasversi (Francia; Spagna or. e merid.)	6
5b	Funicolo antennale con articoli apicali più o meno così lunghi che larghi, raramente trasversi, non o poco più larghi di quelli basali (Spagna merid.; Algeria)	15
6a	Scapo antennale normalmente ingrossato dalla base verso l'apice (Francia merid., Spagna nord-or.)	7

6b Scapo antennale per lo più particolarmente robusto, in ogni caso non o appena ingrossato dalla base fin quasi presso l'apice 9

7a Pterigi indistinti. Profilo apicale delle elitre in visione dorsale lanceolato (Francia sud-occ.) *grenieri*

7b Pterigi salienti. Profilo apicale delle elitre in visione dorsale più o meno arrotondato 8

8a Elitre con setole robuste, appiattite, indistinte (Spagna nord-or.) . *adusticornis*

8b Elitre con setole esili, erette (Francia merid.) *subsetosa*

9a Rostro distintamente trasverso (Francia merid.) *flavipennis*

9b Rostro subquadrato (Francia merid.; Spagna or.) 10

10a Scapo antennale privo di squame. Protibie avanti l'apice diritte o debolmente allargate sul lato esterno (Francia merid.) *necessaria*

10b Scapo antennale con squame. Protibie avanti l'apice smussate sul lato esterno 11

11a Occhi grandi, appiattiti. Elitre allungate (Francia merid.; Spagna or.) 12

11b Occhi piccoli, alquanto rilevati. Elitre più brevi (Spagna merid.: Andalusia) . 14

12a Statura mediamente maggiore: 4,5-6,5 mm. Pronoto più largo alla base che al margine anteriore. Elitre più larghe, sulla declività posteriore con setole allungate (Francia merid.; Spagna nord-or. e centr.) *prolixa*

12b Statura mediamente minore: 3,5-5 mm. Pronoto non più largo alla base che al margine anteriore. Elitre più strette, sulla declività posteriore con setole guttiformi (Spagna or.) 13

13a Statura mediamente alquanto maggiore: 4-5 mm. Elitre distintamente allungate, per lo più a lati subparalleli. Rostro a lati subparalleli, con pterigi non o appena salienti. Pronoto a lati debolmente sinuati, largo alla base più o meno quanto al margine anteriore *quadraticollis*

13b Statura mediamente alquanto minore: 3,4-4,5 mm. Elitre non o poco allungate, subarrotondate ai lati. Lati del rostro convergenti in avanti, con pterigi salienti. Pronoto a lati distintamente sinuati, più stretto alla base che al margine anteriore *levida*

14a Rostro trasverso. Scapo con squame ben distinte dalle setole. Colorazione grigia (Jaén) *kiesenwetterii*

14b Rostro subquadrato. Scapo con squame molto allungate, appena distinte dalle setole. Colorazione per lo più terrea (Sierra de Cazorla) *baetica*

15a Elitre con setole semierette o reclinate, ma sempre evidenti (Spagna merid.: Andalusia) 16

15b Elitre con setole abbattute, indistinte (Algeria) 17

16a Elitre con setole più robuste, reclinate. Arti più robusti *gougeletii*

16b Elitre con setole più esili, semierette. Arti più esili *alonsoi*

17a Secondo articolo del funicolo antennale appena più lungo del terzo. Rivestimento a squame dorate *pici*

17b Secondo articolo del funicolo antennale lungo più o meno quanto il terzo ed il quarto presi insieme 18

18a Pronoto non impresso. Rostro subquadrato. Rivestimento a squame biancastre, smeraldine o dorate *sinuata*

18b Pronoto sul dorso a ciascun lato con un' impressione. Rostro debolmente trasverso. Rivestimento a squame smeraldine *biimpressa*

19a Epistoma a bordi rialzati, più o meno profondamente incavato (Grecia; Albania; Italia nord-occ. e penins., Sicilia, Sardegna e isole italiane minori, Corsica; Francia) 20

19b Epistoma con bordi non o appena rialzati, a forma di placca non o molto debolmente incavata. (Sicilia; Tunisia) 70

20a Scapo antennale eccezionalmente robusto, pressoché dello stesso diametro dalla base fin quasi avanti l'apice, e pronoto largo distintamente più di 3/5 delle elitre, oppure epistoma poco incavato oppure protibie avanti l'apice distintamente ricurve verso l'interno, oppure fronte larga ed occhi del tutto laterali. Sacco interno del pene con armatura genitale a lamina dorsale molto sviluppata (Figs 12-14) (Albania; Italia nord-occ. e penins., Arcip. Toscano, Is. Ponzie, Eolie e Pantelleria, Sardegna, Corsica) 21

20b Scapo antennale per lo più non particolarmente robusto, normalmente ingrossato dalla base verso l'apice, oppure pronoto largo meno di 3/5 delle elitre. Epistoma profondamente incavato. Protibie avanti l'apice più o meno diritte. Fronte più o meno stretta ed occhi alquanto dorsali. Sacco interno del pene con armatura genitale a lamina dorsale poco sviluppata (Fig. 15) (Grecia; Italia penins., Is. Elba, Eolie, Sicilia, Sardegna, Corsica) 48

21a Clipeo più stretto, nel suo punto più stretto non più largo di 2/3 della fronte. Sacco interno del pene munito di armatura genitale a margine anteriore incompleto e lamina dorsale con microsetole (Fig.12), privo di armature supplementari (Albania; Italia nord-occ. e penins., Sardegna, Corsica; Francia). Gruppo *rustica* 22

21b Clipeo più largo, nel suo punto più stretto più largo di 2/3 della fronte. Sacco interno del pene munito di armatura genitale a margine anteriore completo e lamina dorsale glabra (Figs 13, 14), nonché per lo più anche di armature supplementari (Italia nord-occ. e penins., Arcip. Toscano, Is. Ponzie, Eolie e Pantelleria, Sardegna). Gruppo *sardoa* 38

22a Scapo antennale eccezionalmente robusto, pressoché dello stesso diametro dalla base fin quasi avanti l'apice, e pronoto largo distintamente più di 3/5 delle elitre 23

22b Scapo antennale non particolarmente robusto 31

23a Epistoma non molto incavato (Liguria, Emilia, Toscana) 24

23b Epistoma molto profondamente incavato (Francia; Italia nord-occ.: Alpi maritt.) 26

24a Statura mediamente minore: 3-4,3 mm. Elitre con setole reclinate e squamulazione generalmente scura, talora con deboli riflessi dorati (Liguria, Emilia) *ligurica*

24b Statura mediamente maggiore: 3,5-5,1 mm. Elitre con setole semierette e squamulazione almeno in parte argentea (Toscana: Alpi Apuane) 25

25a Elitre più allungate, con setole un po' meno ricurve. Terzo articolo del funicolo antennale trasverso *mancinii*

25b	Elitre più corte, con setole più ricurve. Terzo articolo del funicolo antennale moniliforme	<i>meles</i>
26a	Primo articolo del funicolo antennale distintamente più esile del settimo (Francia)	<i>rustica</i>
26b	Primo articolo del funicolo antennale non più esile del settimo, solitamente più robusto (Francia sud-or.: Alpes-Maritimes; Italia nord-occ.: Liguria)	27
27a	Primo articolo del funicolo antennale non o poco enfiato, a lati subrettilinei in avanti, non o appena più grosso del terzo (Alpes-Maritimes; Liguria)	<i>clairi</i>
27b	Primo articolo del funicolo antennale enfiato, più grosso del terzo (Alpes-Maritimes)	28
28a	Terzo articolo del funicolo antennale non più piccolo del settimo	<i>nicaeensis</i>
28b	Terzo articolo del funicolo antennale più piccolo del settimo	29
29a	Secondo articolo del funicolo antennale evidentemente più corto del terzo e quarto presi insieme	<i>robusticornis</i>
29b	Secondo articolo del funicolo antennale lungo più o meno quanto il terzo e quarto presi insieme	30
30a	Antenne più robuste, con articoli 3-7 appiattiti all'apice	<i>ruteri</i>
30b	Antenne meno robuste, con articoli 3-7 più o meno arrotondati all'apice	<i>ochsi</i>
31a	Fronte più larga, subconvessa, più o meno regolarmente declive verso gli occhi alquanto laterali. Protibie avanti l'apice più o meno diritte	32
31b	Fronte più stretta, più o meno largamente infossata al centro o subpiana con margine sopraoculare rialzato ed occhi alquanto dorsali. Protibie avanti l'apice distintamente ricurve verso l'interno	37
32a	Elitre sul dorso in avanti gibbose, con setole per lo più semierette (Albania; Italia centr. e merid., Sicilia nord-or.)	33
32b	Elitre sul dorso indistintamente convesse in senso antero-posteriore, con setole reclinate (Italia sud-occ., Sardegna, Corsica)	34
33a	Rapporto tra la larghezza del pronoto e quella delle elitre minore. Omeri poco pronunciati. Elitre con setole robuste e squame più piccole, per lo più fortemente embricate. Occhi subemisferici (Albania; Italia merid., Sicilia)	<i>obscura</i>
33b	Rapporto tra la larghezza del pronoto e quella delle elitre maggiore. Omeri indistinti. Elitre con setole sottili e squame più grandi, non o appena embricate. Occhi un po' appiattiti (Italia centr. e merid.)	<i>obscurella</i>
34a	Occhi non prominenti. Squame senza o con deboli riflessi metallici (Italia merid.: Appennino calabro-lucano)	<i>pseudobscura</i>
34b	Occhi prominenti. Squame per lo più con distinti riflessi metallici (Sardegna, Corsica)	35
35a	Elitre nero-brune unicolori, con setole fin dalla base fortemente inclinate in addietro (Sardegna centro-or.: Bruncu Spina)	<i>eleonorae</i>
35b	Elitre brune, con macchie irregolari più chiare e setole avanti l'apice inclinate in addietro (Corsica)	36
36a	Spermateca con cornus lungo ed esile. Elitre un po' più brevi, con setole un po' più sollevate. Maschio noto	<i>ferdinandi</i>

36b Spermateca priva di cornus. Elitre un po' più allungate, con setole più reclinate. Maschio sconosciuto *virgo*

37a Funicolo antennale robusto. Elitre più brevi (Toscana, Is. Elba) *rudis*

37b Funicolo antennale esile. Elitre più allungate (Emilia) *andreae*

38a Elitre sui fianchi con setole sollevate o semierette 39

38b Elitre sui fianchi con setole abbattute o reclinate 42

39a Elitre sui fianchi con setole semierette (Campania, Is. Poniane) . *crassirostris*

39b Elitre sui fianchi con setole sollevate 40

40a Protibie sul lato esterno avanti l'apice largamente smussate, così che appaiono un po' incurvate verso l'interno (Is. Eolie) *aeolica*

40b Protibie sul lato esterno diritte, avanti l'apice brevemente smussate 41

41a Pronoto fortemente trasverso. Elitre brevemente ovali. Sacco interno del pene privo di armature supplementari (Liguria, Appenino emiliano, Toscana, Lazio) *parvula*

41b Pronoto poco trasverso. Elitre alquanto allungate. Sacco interno del pene munito di armature supplementari (Pantelleria) *cossyrica*

42a Elitre sui fianchi con setole abbattute (Sardegna) 43

42b Elitre sui fianchi con setole reclinate (Toscana, Arcip. toscano, Sardegna) .. 44

43a Elitre sulla declività posteriore con setole reclinate (Sardegna sud-or.) . *lostiae*

43b Elitre sulla declività posteriore con setole sollevate (Sardegna sud-occ.) *anachoreta*

44a Sesto articolo del funicolo antennale submoniliforme (Sardegna, Is. Gorgona) 45

44b Sesto articolo del funicolo antennale trasverso (Sardegna) 46

45a Settimo articolo del funicolo antennale distintamente più largo del secondo (Sardegna or.) *sardoa*

45b Settimo articolo del funicolo antennale non più largo del secondo (Is. Gorgona) *bartolii*

46a Pronoto meno marcatamente trasverso. Colorazione più scura (Monte Linas) *fancelloii*

46b Pronoto più marcatamente trasverso. Colorazione più chiara 47

47a Capo e pronoto normali (Monte Albo) *montisalbi*

47b Capo e pronoto eccezionalmente larghi (Iglesias: Fontanamare) *macrocephala*

48a Distimetatarsomero molto sviluppato, oltre due volte più lungo dei lobi del terzo metatarsomero. Pronoto con punteggiatura foveiforme (Sardegna, Corsica). Gruppo *insularis* 49

48b Distimetatarsomero normale, meno di due volte più lungo del terzo metatarsomero. Pronoto con punteggiatura superficiale o evidente, raramente foveiforme (Grecia; Italia penins., Sicilia). Gruppo *echidna* 57

49a Fronte non o appena infossata al centro. Interstrie delle elitre subpiane (Corsica) *muscorum*

49b Fronte distintamente infossata (Sardegna, Corsica) 50

50a Secondo articolo del funicolo antennale al più due volte più lungo che largo. Vestitura terrea 51

50b Secondo articolo del funicolo antennale oltre due volte più lungo che largo . 54

51a	Rostro trasverso. Occhi alquanto appiattiti (Corsica)	<i>soror</i>
51b	Rostro un po' più lungo che largo o subquadrato. Occhi subemisferici	52
52a	Rostro un po' più lungo che largo (Sardegna sud-or.)	<i>transversicollis</i>
52b	Rostro subquadrato	53
53a	Articoli basali del funicolo antennale con dense setole anche brevi e alquanto larghe, biancastre. Pronoto con punti più piccoli (Corsica)	<i>insularis</i>
53b	Articoli basali del funicolo antennale con setole più rade, esili. Pronoto con punti più grandi (Sardegna sud-or.)	<i>incognita</i>
54a	Rostro allungato. Fronte profondamente infossata (Sardegna nord-occ., Is. Asinara)	55
54b	Rostro subquadrato o trasverso. Fronte moderatamente infossata (Sardegna, Corsica)	56
55a	Elitre poco insellate alla base, distintamente ristrette nella porzione apicale (Is. Asinara)	<i>sinuariae</i>
55b	Elitre distintamente insellate alla base, non o poco ristrette nella regione apicale (Sardegna nord-occ.: Stintino)	<i>leoi</i>
56a	Elitre con setole più robuste, reclinate (Corsica sud-or.)	<i>foveithorax</i>
56b	Elitre con setole più esili, semierette (Sardegna centr. e merid.)	<i>inopinata</i>
57a	Pronoto con punteggiatura foveiforme. Elitre con setole dorsali erette (Emilia, Toscana, Lazio)	58
57b	Pronoto con punteggiatura normale (Grecia; Italia merid., Sicilia, Is. Eolie)	59
58a	Scapo antennale più lungo ed esile, normalmente ingrossato dalla base verso l'apice (Toscana)	<i>holdhausi</i>
58b	Scapo antennale robusto anche nel primo terzo. (Toscana, Is. Elba, Lazio)	<i>echidna</i>
59a	Anche il secondo articolo del funicolo antennale con setole allungate, non o poco allargate all'apice (Grecia; Italia merid., Sicilia sett., Is. Eolie) .	60
59b	Almeno il secondo articolo del funicolo antennale con setole brevi, fortemente allargate già nella metà basale, più o meno troncate all'apice (Sicilia or.)	68
60a	Elitre con setole semierette anche ai lati e sul dorso (Calabria)	<i>paganettii</i>
60b	Elitre con setole reclinate o sollevate almeno ai lati e sul dorso	61
61a	Secondo articolo del funicolo antennale subcilindrico, circa due volte più lungo che largo	62
61b	Secondo articolo del funicolo antennale subconico, distintamente meno di due volte più lungo che largo	65
62a	Sesto articolo del funicolo antennale trasverso (Grecia)	<i>kapleri</i>
62b	Sesto articolo del funicolo antennale submoniliforme (Italia merid., Sicilia) .	63
63a	Rostro a lati convergenti in avanti. Penne a profilo lanceolato nella regione apicale (Italia merid.)	<i>lucana</i>
63b	Rostro a lati subparalleli (Sicilia)	64
64a	Rostro fortemente trasverso. Penne a profilo lanceolato nella regione apicale	<i>solarii</i>
64b	Rostro più o meno così lungo che largo o debolmente trasverso. Penne a profilo scutiforme nella regione apicale	<i>nebrodensis</i>

65a	Interstrie delle elitre subconvesse (Sicilia or.)	<i>vitalei</i>
65b	Interstrie delle elitre subpiane (Puglia, Calabria)	66
66a	Occhi infossati. Pene a profilo arrotondato nella regione apicale (Calabria)	<i>silvestrii</i>
66b	Occhi prominenti. Pene a profilo lanceolato o scutiforme nella regione apicale	67
67a	Antenne con scapo alquanto esile nel primo terzo ed articoli 6-7 del funicolo submoniliformi. Pene a profilo lanceolato nella regione apicale (Calabria)	<i>binaghii</i>
67b	Antenne con scapo alquanto robusto nel primo terzo ed articoli 6-7 del funicolo trasversi. Pene a profilo scutiforme nella regione apicale (Puglia)	<i>apula</i>
68a	Fronte piana o alquanto convessa. Almeno i primi sei articoli del funicolo antennale con setole distintamente allargate all'apice (Sicilia sud-or.)	<i>doderoi</i>
68b	Fronte infossata al centro. Sesto articolo del funicolo antennale con setole acuminate	69
69a	Secondo articolo del funicolo antennale almeno una volta e mezza più lungo che largo (Sicilia nord-or.)	<i>reitteri</i>
69b	Secondo articolo del funicolo antennale meno di una volta e mezza più lungo che largo (Sicilia sud-or.)	<i>osellai</i>
70a	Corbule delle tibie posteriori glabre. Elitre con setole più o meno allungate, solitamente poco allargate dalla base all'apice, eccezionalmente guttiformi. Armatura genitale del sacco interno del pene: Fig. 16. Manubrium dello spiculum ventrale molto allungato (Sicilia). Gruppo <i>exigua</i>	71
70b	Corbule delle tibie posteriori almeno con alcune squame. Elitre con setole brevissime, subtriangolari. Armatura genitale del sacco interno del pene: Fig. 17. Manubrium dello spiculum ventrale poco allungato (Tunisia). Gruppo <i>tunicensis</i>	72
71a	Clipeo con setole spatoliformi. Specie partenogenetica	<i>pfisteri</i>
71b	Clipeo con setole poco allargate all'apice. Specie anfigonica	<i>exigua</i>
72a	Statura mediamente maggiore: 4-5,5 mm. Scapo antennale robusto anche nel terzo basale	<i>angulicollis</i>
72b	Statura mediamente minore: 3,2-4,5 mm. Scapo antennale normalmente ingrossato dalla base verso l'apice	73
73a	Elitre sul dorso e sui fianchi con setole abbattute. Occhi alquanto appiattiti. Corbule delle tibie posteriori presso il margine superiore sempre solo con alcune squame	74
73b	Elitre sul dorso e sui fianchi con setole reclinate. Occhi subemisferici. Corbule delle tibie posteriori ricoperte di squame talora su tutto il loro terzo superiore	75
74a	Squame con intensi riflessi metallici per cui il rivestimento appare brillante. Elitre più di una volta e mezza più lunghe che larghe	<i>tunicensis</i>
74b	Squame con deboli riflessi metallici. Elitre meno di una volta e mezza più lunghe che larghe	<i>stuebeni</i>

75a Elitre allungate (rapporto larghezza/lunghezza minore di 1:1,45). Occhi piccoli, infossati. Funicolo antennale particolarmente robusto. Corbule delle tibie posteriori presso il margine superiore solo con alcune squame *behnei*

75b Elitre brevi (rapporto larghezza/lunghezza maggiore di 1:1,4,5). Occhi normali. Funicolo antennale non particolarmente robusto. Corbule delle tibie posteriori distintamente ricoperte di squame sul terzo superiore *belloi*

VIII. Gen. *Ripetelus* F. Solari, 1950

SPECIE TIPO: *Peritelus henoni* Desbrochers, 1896 (Foto 8).

NOTE GENERALI: Genere monotipico. Ridescrizione in Pierotti & Bellò (1998: 94)

NOTE DI ECOLOGIA: Non si hanno dati.

SPECIE ASCRITTE:

1. *henoni* (Desbrochers, 1896): Algeria. Ridescrizione in Hustache (1935: 206).

IX. Gen. *Dolichomeira* F. Solari, 1955

SPECIE TIPO: *Meira seidlitzii* Desbrochers, 1888 (Foto 9).

NOTE GENERALI: Revisione del genere in Pierotti & Bellò (2000: 129-192).

NOTE DI ECOLOGIA: Le specie sono state raccolte su o ai piedi di anacardiacee (*Pistacia*), cistacee (*Cistus*), fagacee (*Quercus*), giuncacee (*Juncus*), leguminose (*Genista*), moracee (*Ficus*), oleacee (*Olea*), rosacee (*Crataegus, Malus, Pyrus, Rubus*), oltreché ai piedi di diverse graminacee.

SPECIE ASCRITTE:

1. *microphthalmia* (Seidlitz, 1868): Sicilia.
2. *sassarensis* (Desbrochers, 1888): Sardegna.
3. *seidlitzii* (Desbrochers, 1888): Sardegna.
4. *amorei* (A. & F. Solari, 1905): Italia centr.
5. *minor* (Pic, 1908): Tunisia.
6. *longior* (Pic, 1908): Tunisia.
7. *nasuta* (Péricart, 1963): Sardegna.
8. *colonellii* Pierotti & Bellò, 1994: Italia centr.
9. *dubia* Pierotti & Bellò, 1994: Sicilia.
10. *arburensis* Pierotti & Bellò, 2000: Sardegna.
11. *calabrica* Pierotti & Bellò, 2000: Italia merid.
12. *caralitana* Pierotti & Bellò, 2000: Sardegna.
13. *caroli* Pierotti & Bellò, 2000: Sardegna.
14. *circumcincta* Pierotti & Bellò, 2000: Sardegna.
15. *francisci* Pierotti & Bellò, 2000: Sardegna.
16. *ichnusae* Pierotti & Bellò, 2000: Sardegna.
17. *jana* Pierotti & Bellò, 2000: Sardegna.
18. *jugurtha* Pierotti & Bellò, 2000: Tunisia.
19. *lentisci* Pierotti & Bellò, 2000: Sardegna.

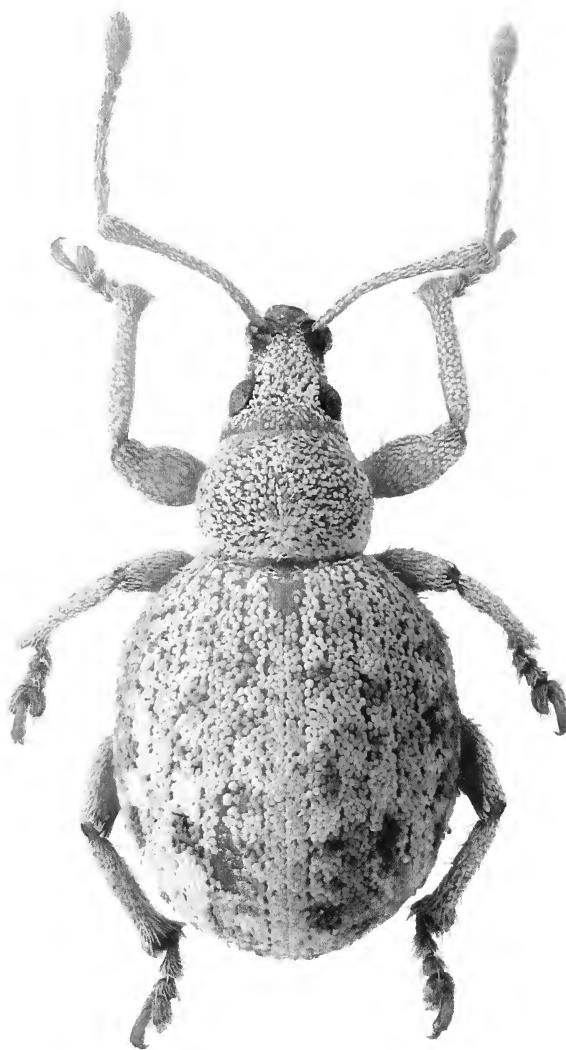


FOTO 8

Habitus delle specie tipo dei generi di Peritelini paleartici:
Ripetelus henoni (Desbrochers) maschio di Nemours (ora Ghazaouet, Algeria); lungh. 3,7 mm.

20. *marci* Pierotti & Bellò, 2000: Sardegna.
21. *marcosellai* Pierotti & Bellò, 2000: Sardegna.
22. *melonii* Pierotti & Bellò, 2000: Sardegna.
23. *michaelis* Pierotti & Bellò, 2000: Sardegna.
24. *nugorensis* Pierotti & Bellò, 2000: Sardegna.
25. *numidica* Pierotti & Bellò, 2000: Sardegna.
26. *nuragica* Pierotti & Bellò, 2000: Sardegna.
27. *occidentalis* Pierotti & Bellò, 2000: Sardegna.



FOTO 9

Habitus delle specie tipo dei generi di Peritelini palearctici:
Dolichomeira seidlitzi (Desbrochers) di S. Sperate (Cagliari, Italia); lungh. 3,9 mm.

28. *olearia* Pierotti & Bellò, 2000: Sardegna.
29. *oppidana* Pierotti & Bellò, 2000: Sardegna.
30. *philippi* Pierotti & Bellò, 2000: Sardegna.
31. *plumbariae* Pierotti & Bellò, 2000: Sardegna.
32. *scodinai* Pierotti & Bellò, 2000: Sardegna.
33. *sulcitana* Pierotti & Bellò, 2000: Sardegna.
34. *tubaedicata* Pierotti & Bellò, 2000: Sardegna.
35. *vagnonii* Pierotti & Bellò, 2000: Sardegna.

X. Gen. ***Heteromeira*** F. Solari, 1955

SPECIE TIPO: *Meira variegata* A. & F. Solari, 1903 (Foto 10)

NOTE GENERALI: Ridescrizione del genere in Pierotti & Bellò (1998: 97).

NOTE DI ECOLOGIA: Le specie sono state raccolte su o ai piedi di anacardiacee (*Pistacia*), araliacee (*Hedera*), betulacee (*Alnus*, *Ostrya*), cistacee (*Cistus*), crassulacee (*Sedum*), euphorbiacee (*Euphorbia*), fagacee (*Castanea*, *Fagus*, *Quercus*), labiate (*Thymus*), leguminose (*Genista*), mirtacee (*Myrtus*), oleacee (*Olea*), pinacee (*Pinus*), ranuncolacee (*Helleborus*), rosacee (*Prunus*, *Rubus*), salicacee (*Salix*), sassifragacee (*Saxifraga*), oltreché sotto muschi.

SPECIE ASCRITTE:

1. *laticrobs* (Desbrochers, 1871): Corsica, Sardegna.
2. *damryi* (Tournier, 1876): Corsica.
3. *neapolitana* (Faust, 1890): Italia centr. e merid., Sicilia.
4. *sicula* (Desbrochers, 1892): Sicilia.
5. *variegata* (A. & F. Solari, 1903): Italia nord-occ.: Liguria; Princ. Monaco.
6. *raffrayi* (Pic, 1908): Italia centr.
7. *caprasiae* (A. & F. Solari, 1933): Arcip. Toscano, Corsica.
8. *proxima* F. Solari, 1955: Sardegna.
9. *marianii* (Pesarini, 1972): Italia merid.
10. *marginatae* Bellò & Pierotti, 1992: Italia merid.
11. *pacei* Bellò & Pierotti, 1992: Sicilia

TABELLA DELLE SPECIE:

1a	Rostro a lati marcatamente convergenti in avanti, con pterigi molto distintamente, spesso bruscamente, salienti	2
1b	Rostro a lati non o appena convergenti in avanti, con pterigi non o poco e progressivamente salienti (Italia penins.)	8
2a	Elitre sulla declività posteriore con setole reclinate o sollevate (Sardegna, Corsica). Gruppo <i>laticrobs</i>	3
2b	Elitre sulla declività posteriore con setole erette o semierette (Italia centr. e merid., Sicilia). Gruppo <i>neapolitana</i>	5
3a	Pronoto non o appena più largo alla base che al margine anteriore. Rostro subquadrato. Elitre dietro agli omeri con setole alquanto brevi e reclinate	<i>proxima</i>
3b	Pronoto distintamente più largo alla base che al margine anteriore	4
4a	Funicolo antennale con articoli apicali allungati o più o meno moniliformi o subtrapezoidali, talora il 6° ed il 7° debolmente trasversi. Protibie diritte avanti l'apice	<i>laticrobs</i>
4b	Funicolo antennale molto robusto, con articoli apicali distintamente trasversi. Protibie più o meno arcuate avanti l'apice	<i>damryi</i>
5a	Pronoto regolarmente arrotondato ai lati. Statura mediamente maggiore: 4,2-5,5 mm	<i>raffrayi</i>
5b	Pronoto sinuato ovvero poco o angolosamente arrotondato ai lati. Statura mediamente minore: 3-4,6 mm	6



FOTO 10

Habitus delle specie tipo dei generi di Peritelini palearctici:
Heteromeira variegata (A. & F. Solari) di S. Ilario di Nervi (Genova, Italia); lungh. 3,7 mm.

- 6a Elitre dietro agli omeri con setole brevi, reclinate o sollevate. Funicolo antennale robusto *sicula*
- 6b Elitre dietro agli omeri con setole allungate 7
- 7a Elitre dietro agli omeri con setole semierette od erette *neapolitana*
- 7b Elitre dietro agli omeri con setole reclinate o sollevate *pacei*
- 8a Anche il settimo articolo del funicolo antennale trasverso. Pronoto più largo alla base che al margine anteriore. Sacco interno del pene munito di armature basali *margheritae*

8b Almeno il settimo articolo del funicolo antennale allungato o monili-forme. Pronoto non o appena più largo alla base che al margine anteriore. Sacco interno del pene privo di armature basali. Gruppo *variegata* 9
 9a Setole elitrali più brevi, reclinate o sollevate anche sulla declività posteriore *caprasiae*
 9b Setole elitrali più lunghe, semierette almeno sulla declività posteriore 10
 10a Elitre dietro agli omeri con setole reclinate o sollevate. Protibie sul margine esterno diritte avanti l'apice *variegata*
 10b Elitre anche dietro agli omeri con setole erette o semierette. Protibie sul margine esterno più o meno incurvate verso l'interno avanti l'apice .. *mariannii*

XI. Gen. *Meirella* Pierotti & Bellò, 1997

SPECIE TIPO: *Meirella suturella* Fairmaire, 1859 (Foto 11).

NOTE DI ECOLOGIA: Le specie sono state raccolte su o ai piedi di anacardiacee (*Pistacia*), chenopodiacee (*Beta*, *Kochia*), cistacee (*Cistus*), ericacee (*Erica*), euforbiacee (*Euphorbia*), fagacee (*Castanea*, *Quercus*), leguminose (*Lotus*, *Trifolium*), pinacee (*Pinus*), rosacee (*Malus*, *Rubus*), oltreché sotto muschi.

SPECIE ASCRITTE:

1. *suturella* (Fairmaire, 1859): Italia nord-occ., Francia merid.
2. *elongatula* (Fairmaire, 1859): Italia sett. e centr., Francia merid., Spagna nord-or.
3. *minima* (Stierlin, 1861): Sardegna.
Ridescrizione in Pierotti (2009: 2).
4. *grouvellei* (Stierlin, 1883): Francia sud-or.

TABELLA DELLE SPECIE:

1a Tibie anteriori nel maschio diritte fin presso l'apice. Pene scutiforme nella regione apicale 2
 1b Tibie anteriori nel maschio incurvate verso l'interno. Pene lanceolato nella regione apicale (Francia mer.) 3
 2a Statura mediamente minore: 2-2,9 mm. Pronoto distintamente più largo della metà delle elitre. Elitre allungate, a lati più o meno rettilinei, con setole reclinate (forma tipica) o brevemente ovoidali, con setole sollevate o semierette (forma *florentina* Stierlin, 1884). Pene ad apice appuntito (dal Lazio alla Catalogna, lungo le coste del Mediterraneo) ... *elongatula*
 2b Statura mediamente maggiore: 2,9-3,5 mm. Pronoto largo più o meno la metà delle elitre. Setole elitrali reclinate. Pene ad apice arrotondato (Sardegna) *minima*
 3a Elitre a lati subrettilinei, con setole reclinate. Articoli 6-7 del funicolo antennale e clava esili, allungati (Var: Hyères) *suturella*
 3b Elitre a lati arrotondati, con setole sollevate. Articoli 6-7 del funicolo antennale e clava robusti (Alpes-Maritimes: Menton) *grouvellei*

XII. Gen. *Lepretius* Pierotti & Bellò, 1997

SPECIE TIPO: *Peritelus poutiersi* Hoffmann, 1945 (Foto 12).

NOTE GENERALI: Ridescrizione del genere e tabella delle specie in Pierotti (2010b: 505-507).

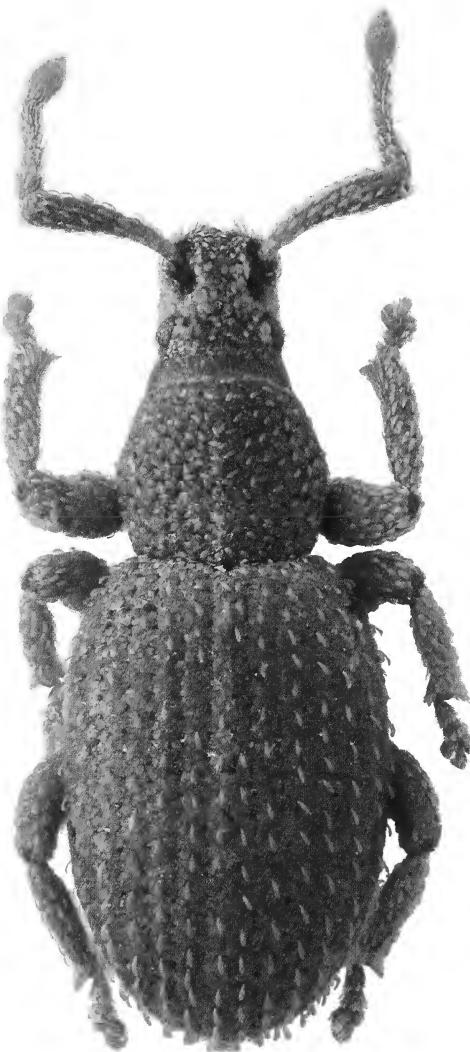


FOTO 11

Habitus delle specie tipo dei generi di Peritelini paleartici:
Meirella suturella (Fairmaire) di Hyères (Var, Francia); lungh. 2,8 mm.

NOTE DI ECOLOGIA: Le specie sono state raccolte su o ai piedi di betulacee (*Alnus*), cistacee (*Cistus*), composite (*Artemisia*), cupressacee (*Juniperus*), fagacee (*Quercus*), leguminose (*Calicotome*, *Genista*), oleacee (*Olea*, *Phyllirea*), rosacee (*Fragaria*), ulmacee (*Ulmus*), vitacee (*Vitis*).



FOTO 12

Habitus delle specie tipo dei generi di Peritelini paleartici:
Lepretius poutiersi (Hoffmann) maschio di Tourrette-s/Loup (Alpes-Maritimes, Francia);
lungh. 4,2 mm.

SPECIE ASCRITTE:

1. *noxius* (Bohemian, 1834): Romania, Dalmazia, Italia sett., Francia merid.
2. *coniceps* (Desbrochers, 1897): Algeria. Ridescritzione in Pierotti (2010b: 506).
3. *poutiersi* (Hoffmann, 1945): Francia merid.

XIII. Gen. *Leptomeira* Pierotti & Bellò, 1997

SPECIE TIPO: *Leptomeira meregallii* Pierotti & Bellò, 1997 (Foto 13).

NOTE DI ECOLOGIA: Le specie sono state raccolte su o ai piedi di anacardiacee (*Pistacia*), araliacee (*Hedera*), labiate (*Thymus*), oltreché sotto muschi.

SPECIE ASCRITTE:

1. *squamulata* (Reiche, 1862): Corsica. Ridescrizione in Pierotti & Bellò (1997: 172).
2. *meregallii* Pierotti & Bellò, 1997: Sardegna.
3. *nupta* Pierotti & Bellò, 2001: Corsica.

TABELLA DELLE SPECIE:

1a	Forma più tozza. Rostro molto più corto che largo alla base. Articoli 6. e 7. del funicolo antennale non o appena più robusti dei due precedenti. Elitre con squame subrotonde e setole robuste, alquanto distanziate. Maschio sconosciuto	<i>squamulata</i>
1b	Forma più slanciata. Rostro più o meno così lungo che largo alla base. Articoli 6. e 7. del funicolo antennale distintamente più robusti dei due precedenti. Elitre con squame dorsali più piccole , allungate e setole più esili, ravvicinate	2
2a	Elitre con squame dorsali meno allungate e setole più robuste, semi-erette. Funicolo antennale con articoli apicali più robusti. Maschio sconosciuto	<i>meregallii</i>
2b	Elitre con squame dorsali fortemente allungate e setole più esili, reclinate. Funicolo antennale con articoli apicali più esili. Maschio noto	<i>nupta</i>

XIV. Gen. *Pseudosimo* Pierotti & Bellò, 1999

SPECIE TIPO: *Peritelus juniperi* Desbrochers, 1888 (Foto 14).

NOTE GENERALI: Genere monotipico.

NOTE DI ECOLOGIA: L'unica specie è stata raccolta su o ai piedi di composite (*Centaurea*), cupressacee (*Juniperus*), plumbaginacee (*Limonium*).

SPECIE ASCRITTE:

1. *juniperi* (Desbrochers, 1888): Sardegna. Ridescrizione in Pierotti & Bellò (1999: 416)

XV. Gen. *Borovecia* Pierotti & Bellò, 2001

SPECIE TIPO: *Borovecia gadorensis* Pierotti & Bellò, 2001 (Foto 15)

NOTE GENERALI: Genere monotipico.

NOTE DI ECOLOGIA: L'unica specie è stata raccolta ai piedi di berberidacee (*Berberis*).

SPECIE ASCRITTE:

1. *gadorensis* Pierotti & Bellò, 2001: Spagna merid.



FOTO 13

Habitus delle specie tipo dei generi di Peritelini paleartici:
Leptomeira meregallii Pierotti & Bellò del Bruncu Spina (Nuoro, Italia); lungh. 2,9 mm.

XVI. Gen. *Heteromeiopsis* Pierotti & Bellò, 2004

SPECIE TIPO: *Heteromeira zariqueyi* F. Solari, 1955 (Foto 16).

NOTE DI ECOLOGIA: Le specie sono state raccolte su o ai piedi di anacardiacee (*Pistacia*), fagacee (*Quercus*), oleacee (*Olea*).

SPECIE ASCRITTE:

1. *zariqueyi* (F. Solari, 1955): Spagna nord-or. Ridescritzione in Pierotti & Bellò (2004: 589).
2. *loebli* Pierotti & Bellò, 2004: Francia sud-occ.
3. *valentiana* Pierotti & Bellò, 2004: Spagna centro-or.

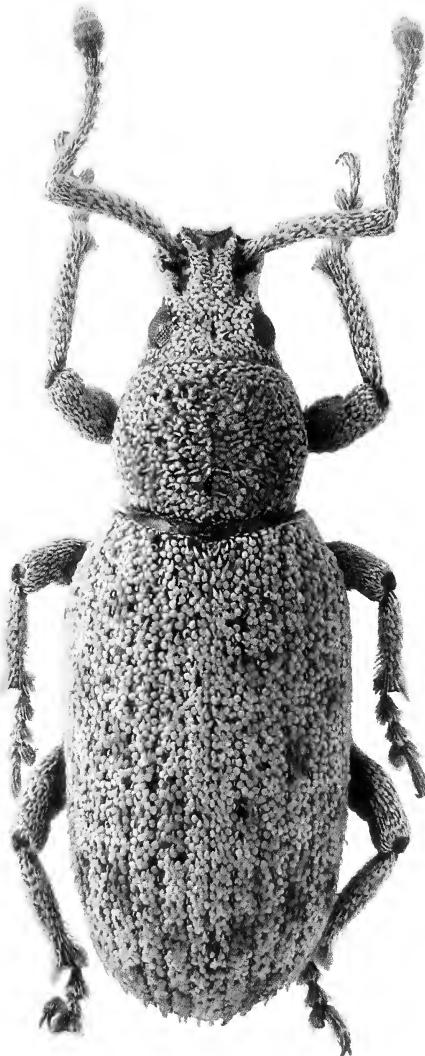


FOTO 14

Habitus delle specie tipo dei generi di Peritelini paleartici:
Pseudosimo juniperi (Desbrochers) di Capo Caccia (Sassari, Italia); lungh. 6 mm.

XVII. Gen. *Simopsis* Pierotti & Bellò, 2006

SPECIE TIPO: *Otiorhynchus astragali* Stierlin, 1861 (Foto 17).

NOTE DI ECOLOGIA: Le specie sono state raccolte su o ai piedi di caprifoliacee (*Lonicera*, *Viburnum*), buxacee (*Buxus*), cistacee (*Cistus*, *Helianthemum*), cupressacee (*Juniperus*), dipsacacee (*Scabiosa*), ericacee (*Calluna*), euforbiacee (*Euphorbia*), fagacee (*Quercus*), labiate (*Mentha*, *Teucrium*, *Thymus*), leguminose (*Calicotome*,



FOTO 15

Habitus delle specie tipo dei generi di Peritelini palearctici:
Borovecia gadorensis Pierotti & Bellò della Sierra de Gádor (Almeria, Spagna); lungh. 4 mm.

Cytisus, *Genista*, *Lotus*, *Spartium*, *Trifolium*, *Vicia*), oleacee (*Olea*), pinacee (*Pinus*), rosacee (*Prunus*, *Pyrus*), scrofulariacee (*Verbascum*).

SPECIE ASCRITTE:

1. *schoenherri* (Bohemann, 1843): Italia sett., Francia merid. Ridescritzione in Pierotti & Bellò (2006: 48).
2. *cremieri* (Bohemian, 1843): Italia centr., Francia merid. Ridescritzione in Pierotti & Bellò (2006: 49).

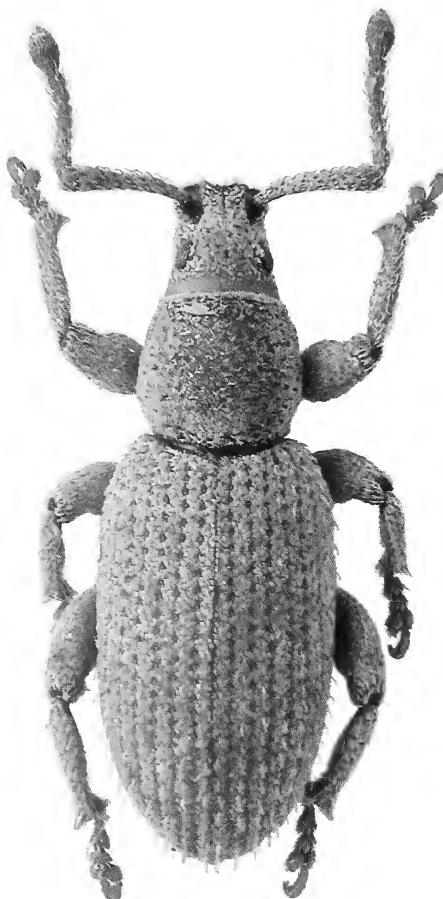


FOTO 16

Habitus delle specie tipo dei generi di Peritelini palearctici:
Heteromeiopsis zariqueyi (F. Solari) di Figueras (Gerona, Spagna); lungh. 5,6 mm.

3. *astragali* (Stierlin, 1861): Sardegna. Ridescritzione in Pierotti & Bellò (2006: 50).
4. *platysoma* (Seidlitz, 1865): Francia merid. Ridescritzione in Pierotti & Bellò (2006: 52).
5. *planidorsis* (Seidlitz, 1865): Francia merid. Ridescritzione in Pierotti & Bellò (2006: 53).
6. *ottonis* (Reitter, 1913): Sardegna. Ridescritzione in Pierotti & Bellò (2006: 54).
7. *ignorata* (A. & F. Solari, 1922): Sardegna. Ridescritzione in Pierotti & Bellò (2006: 55).
8. *montana* (A. & F. Solari, 1922): Sardegna. Ridescritzione in Pierotti & Bellò (2006: 56).
9. *anachoreta* Pierotti & Bellò, 2006: Sardegna.
10. *germanni* Pierotti & Bellò, 2006: Sardegna.



FOTO 17

Habitus delle specie tipo dei generi di Peritelini paleartici:
Simopsis astragali (Stierlin) di Sadali (Nuoro, Italia); lungh. 6,8 mm.

11. *melonii* Pierotti & Bellò, 2006: Sardegna.
12. *mulasi* Pierotti & Bellò, 2006: Sardegna.
14. *supramontana* Pierotti & Bellò, 2006: Sardegna.
15. *tenuisetis* Pierotti & Bellò, 2006: Sardegna.
16. *teucrui* Pierotti & Bellò, 2006: Sardegna.
17. *vativa* Pierotti & Bellò, 2006: Sardegna.
18. *virginum* Pierotti & Bellò, 2006: Sardegna.

Un rinnovato studio, indotto dalla disponibilità di ulteriore cospicuo materiale, ha suggerito di modificare come segue la

TABELLA DELLE SPECIE:

1a	Metatarsi robusti, anche il primo articolo e l'onichio brevi o normali. Coxiti muniti di stili (Francia meridionale). Gruppo <i>schoenherri</i>	4
1b	Metatarsi slanciati, con il primo articolo e l'onichio allungati	2
2a	Dorso delle elitre con setole marcatamente allargate all'apice, abbattute. Coxiti muniti o privi di stili (Italia centrale; Francia meridionale). Gruppo <i>cremieri</i>	5
2b	Dorso delle elitre con setole allungate, non o debolmente allargate all'apice, mai abbattute. Coxiti privi di stili (Sardegna)	3
3a	Metatibie sul margine esterno all'apice fortemente dilatate. Gruppo <i>astragali</i>	6
3b	Metatibie sul margine esterno normalmente dilatate. Gruppo <i>ottonis</i>	9
4a	Forma slanciata. Elitre sul dorso con setole lunghe, esili, semierette. Pene in visione dorsale largamente lanceolato nella regione apicale	
		<i>schoenherri</i>
4b	Forma robusta. Elitre sul dorso con setole brevi, larghe, abbattute. Pene in visione dorsale subtroncato nella regione apicale, brevemente papillato all'apice	<i>platysoma</i>
5a	Epifronte non più alta del vertice. Elitre debolmente allargate presso gli omeri. Protibie non o molto debolmente allargate all'apice. Scapo anten- nale e dorso del pronoto e delle elitre normali. Pene in visione dorsale largamente lanceolato nella regione apicale. Coxiti muniti di stili (Italia centrale e Francia sud-orientale)	<i>cremieri</i>
5b	Epifronte molto più alta del vertice. Elitre con la massima larghezza molto marcatamente appena dietro gli omeri. Protibie fortemente allar- giate all'apice. Scapo antennale e dorso del pronoto e delle elitre alquanto appiattiti. Pene in visione dorsale largamente ogivale nella regione api- cale, brevemente papillato all'apice. Coxiti privi di stili (Francia meri- dionale: Alpes-Maritimes, Var, Vaucluse, Aude)	<i>planidorsis</i>
6a	Scapo robusto anche nel primo terzo. Forma robusta. Pene in visione dorsale tricuspidato nella regione apicale	7
6b	Scapo esile nel primo terzo. Forma slanciata. Pene in visione dorsale subarrotondato nella regione apicale	8
7a	Pronoto fortemente trasverso. Elitre con la massima larghezza marcata- mente in corrispondenza degli omeri. Sesto articolo del funicolo anten- nale solitamente un po' più lungo che largo. Colorazione più chiara. Statura mediamente maggiore: 5,7-10,2 mm. Pene in visione dorsale alquanto ristretto nella regione orifiziale, tricuspidato nella regione api- cale (dalla Marmilla alla Barbagia di Seulo al Salto di Quirra)	<i>astragali</i>
7b	Pronoto debolmente trasverso. Elitre non o debolmente allargate agli omeri, per lo più subparallele ai lati. Sesto articolo del funicolo anten- nale solitamente moniliforme. Colorazione più scura. Statura media-	

mente minore: 5,5-7,3 mm. Pene in visione dorsale ristretto in avanti nella regione orifiziale, distintamente tricuspidato nella regione apicale (rilievi del Gennargentu) *montana*

8a Statura mediamente minore: 3,9-6,4 mm. Elitre solitamente più corte e subarrotolate ai lati, con setole sottili, reclinate sul primo terzo delle elitre, alquanto sollevate sulla declività posteriore Pene in visione dorsale largamente arrotondato nella regione apicale, brevissimamente papillato all'apice (Sarcidano, Barbagia di Seulo) *ignorata*

8b Statura mediamente maggiore: 5,4-7 mm. Elitre allungate, subparallele ai lati, con setole filiformi, semierette sulla declività posteriore. Pene in visione dorsale arrotondato nella regione apicale, brevissimamente papillato all'apice (Sarcida-no) *tenuisetis*

9a Occhi grandi, più o meno appiattiti. Pene in visione dorsale subtroncato, arrotondato o tricuspidato nella regione apicale 10

9b Occhi normali, alquanto prominenti. Pene in visione dorsale tricuspidato nella regione apicale 14

10a Secondo articolo del funicolo antennale distintamente più lungo dei due seguenti presi insieme. Pronoto più stretto alla base che al margine anteriore, sinuato ai lati. Arti più allungati. Pene in visione dorsale brevemente ristretto nella regione orifiziale, papillato all'apice; sacco interno munito, oltre che di armatura genitale, anche di armature supplementari a scleriti simmetrici e a raspula (Monte Albo) *ottonis*

10b Secondo articolo del funicolo antennale subeguale o più corto dei due seguenti presi insieme. Pronoto non più stretto alla base che al margine anteriore, arrotondato ai lati. Arti più brevi 11

11a Pronoto subquadrato 12

11b Pronoto trasverso 13

12a Scapo antennale esile, poco ingrossato dalla base fin presso l'apice, con squame sottili, poco distinte dalle setole. Pene in visione dorsale subtroncato nella regione apicale, papillato all'apice (Supramonte di Orgosolo) *supramontana*

12b Scapo antennale normalmente robusto e ingrossato dalla base verso l'apice, con squame larghe, ben distinte dalle setole. Pene in visione dorsale tricuspidato nella regione apicale (Dorgali) *virginum*

13a Rostro a lati subparalleli, in prosecuzione curvilinea delle guance. Pene in visione dorsale alquanto arrotondato nella regione apicale, papillato all'apice (Monte Tuttavista) *anachoreta*

13b Rostro a lati distintamente convergenti in avanti, in prosecuzione retti - linea delle guance. Pene in visione dorsale a lati distintamente convergenti in avanti nella regione orifiziale, tricuspidato nella regione apicale (Supramonte di Baunei) *osellai*

14a Scapo molto robusto. Pene in visione dorsale a lati distintamente convergenti in avanti nella regione orifiziale, largamente arrotondato o con cuspidi laterali svanite nella regione apicale (pendici orientali del Gennargentu) *mulasi*

14b Scapo normale. Pene in visione dorsale a lati non o appena convergenti in avanti nella regione orifiziale 15

15a Protibie un po' incurvate verso l'interno nel terzo apicale (maschi) o nel quarto apicale (femmine). Pene in visione dorsale a cuspidi laterali svanite o assenti nella regione apicale 16

15b Protibie distintamente incurvate verso l'interno nella metà apicale (maschi) o nel terzo apicale (femmine). Pene in visione dorsale a cuspidi laterali evidenti nella regione apicale 17

16a Elitre sui fianchi con setole reclinate. Pronoto distintamente gibboso alla base. Pene in visione dorsale a lati alquanto convergenti in avanti nella regione orifiziale e cuspidi laterali non prominenti nella regione apicale; sacco interno munito, oltre che di armatura genitale, anche di armatura supplementare a scleriti simmetrici (Sopramonte di Urzulei) *melonii*

16b Elitre sui fianchi con setole sollevate. Pronoto non o appena incurvato alla base. Pene in visione dorsale largamente lanceolato nella porzione apicale, talora brevissimamente papillato all'apice (Monte Tönneri) *teucrii*

17a Pronoto debolmente trasverso. Pene in visione dorsale sub troncato nella regione apicale (Sopramonte di Oliena e di Dorgali) *germanni*

17b Pronoto fortemente trasverso. Pene in visione dorsale alquanto ristretto in avanti nella regione orifiziale, cordiforme nella regione apicale (Dorgali) *vatia*

XVIII. Gen. *Troglorhythmus* Alziar & Lemaire, 2008

SPECIE TIPO: *Troglorhynchus augustae* Alziar, 1977 (Foto 18).

NOTE GENERALI: L'attribuzione del genere ai Peritelini è stata suggerita agli Autori dalla presenza di squame dorsali, pronoto non granulosso, strie elitrali sottili e femori mutici; si tratta di caratteri che, presi singolarmente, sono comuni anche a molti Otiorhynchini e sembrano quindi prestarsi male a definire una dicotomia a livello di Tribù; presi invece nel loro complesso - e unitamente all'anoftalmia - si riscontrano in realtà anche in alcune specie attualmente attribuite ad *Otiorhynchus* subgen. *Lixorrhynchus* [*grenieri* (Allard, 1869) e *pavesii* Magrini, Magnano & Abbazzi, 2006, di Corsica; *doderoi* (A. & F. Solari, 1903) e *degiovannii* Magrini & Consorti, 2005, della Sardegna nord-orientale], quantunque la specie tipo del sottogenere (*Otiorhynchus gracilis* Gyllenhal, 1834) non li presenti: non sembrerebbe inutile, quindi, una revisione ed un probabile scorpo del sottogenere, come rilevato da ultimo dagli stessi Autori.

La validità subspecifica di *raffaldianus giordani* sembra quanto meno dubbia.

NOTE DI ECOLOGIA: Specie troglobie; non si hanno ulteriori dati.

SPECIE ASCRITTE:

1. *augustae* (Alziar, 1977): Francia sud-or.
- 2a. *raffaldianus raffaldianus* Alziar & Lemaire, 2008: Francia sud-or.
- 2b. *raffaldianus giordani* Alziar & Lemaire, 2008: Francia sud-or.
3. *curtii* Alziar & Lemaire, 2010: Francia sud-or.



FOTO 18

Habitus delle specie tipo dei generi di Peritelini palearctici:
Troglorhynchus augustae (Alziar) femmina di L'Escarène dint. (Alpes-Maritimes, Francia);
 lungh. 6,2 mm.

TABELLA DELLE SPECIE:

- 1a Pronoto più marcatamente trasverso (rapporto lunghezza/larghezza maggiore di 1:1,13). Antenne con scapo più robusto *curtii*
- 1b Pronoto meno marcatamente trasverso (rapporto lunghezza/larghezza minore di 1:1,13). Antenne con scapo meno robusto 2
- 2a Clava antennale col primo articolo subrettilinearamente svasato. Elytre con squamule ovali, ravvicinate. Pene in visione dorsale scutiforme nella regione apicale *augustae*

2b Clava antennale col primo articolo sinuatamente svasato. Elitre con squamule subpiliformi, distanziate. Pene in visione dorsale lanceolato nella regione apicale (*raffaldianus* s.l.) 3

3a Colorazione uniformemente bruna *raffaldianus raffaldianus*

3b Colorazione più chiara, soprattutto sulle zampe e sulle elitre *raffaldianus giordani*

XIX. Gen. ***Euplister*** Pierotti, Bellò & Alonso-Zarazaga, 2010

SPECIE TIPO: *Peritelus susanae* Seidlitz, 1866 (Foto 19).

NOTE DI ECOLOGIA: Le specie sono state raccolte su o ai piedi di anacardiacee (*Pistacia*), aquifoliacee (*Ilex*), buxacee (*Buxus*), composite (*Carduus*, *Cirsium*), fagacee (*Quercus*), labiate (*Phlomis*, *Thymus*), leguminose (*Anthyllis*, *Bituminaria*, *Coronilla*, *Erinacea*, *Genista*, *Ononis*, *Trifolium*, *Ulex*), ranuncolacee (*Ranunculus*), timeleacee (*Daphne*), oltreché ai piedi di diverse graminacee.

SPECIE ASCRITTE:

1. *hybridus* (Seidlitz, 1861): Spagna. Ridescrizione in Pierotti *et al.* (2010: 37).
2. *susanae* (Seidlitz, 1866): Spagna. Ridescrizione in Pierotti *et al.* (2010: 36).
3. *magnicollis* (Desbrochers, 1896) **comb. nov.**: Algeria.
4. *setabensis* (Hustache, 1921): Spagna. Ridescrizione in Pierotti *et al.* (2010: 38).
5. *andalusicus* Pierotti, Bellò & Alonso-Zarazaga, 2010: Spagna.
6. *frater* Pierotti, Bellò & Alonso-Zarazaga, 2010: Spagna.
7. *megalopthalmus* Pierotti, Bellò & Alonso-Zarazaga, 2010: Spagna.
8. *mimus* Pierotti, Bellò & Alonso-Zarazaga, 2010: Spagna.
9. *moroderi* Pierotti, Bellò & Alonso-Zarazaga, 2010: Spagna.
10. *trifolii* Pierotti, Bellò & Alonso-Zarazaga, 2010: Spagna.
11. *velazquezi* Pierotti, Bellò & Alonso-Zarazaga, 2010: Spagna.

XX. Gen. ***Pseudoperitelus*** Pierotti, Bellò & Alonso-Zarazaga, 2010

SPECIE TIPO: *Peritelus globulicollis* Seidlitz, 1871 (Foto 20).

NOTE GENERALI: Ridescrizione del genere e tabella delle specie in Pierotti (2010: 203-207).

NOTE DI ECOLOGIA: Le specie sono state raccolte su o ai piedi di chenopodiacee (*Suaeda*), cistacee (*Cistus*), composite (*Artemisia*), eleagnacee (*Elaeagnus*), fagacee (*Quercus*), labiate (*Rosmarinus*, *Thymus*), Leguminose (*Anthyllis*, *Astragalus*, *Dorycnium*, *Genista*, *Ulex*), rosacee (*Prunus*, *Rubus*), timeleacee (*Thymelaea*).

SPECIE ASCRITTE:

1. *senex* (Boheman, 1834): Austria; Italia sett.; Francia; ?Spagna. Ridescrizione in Pierotti *et al.* (2010: 45).
2. *ruficornis* (Brisout, 1863): Francia merid. Ridescrizione in Pierotti (2010a: 204).
3. *globulicollis* (Seidlitz, 1871): Spagna, is. Baleari. Ridescrizione in Pierotti *et al.* (2010: 46).
4. *espanoli* (Roudier, 1958): Spagna: is. Columbretes. Illustrazione di parti anatomiche in Pierotti *et al.* (2010: 53, 75, 85).
5. *lopezi* (Hoffmann, 1961): Spagna: is. Baleari. Illustrazione di parti anatomiche in Pierotti *et al.* (2010: 52, 55, 57, 75, 85).



FOTO 19

Habitus delle specie tipo dei generi di Peritelini paleartici:
Euplister susanae (Seidlitz) della Sierra Elvira (Granada, Spagna); lungh. 4,1 mm.

RINGRAZIAMENTI

Si ringraziano le Istituzioni e i Colleghi che in questi anni hanno in vario modo consentito che fosse portato avanti lo studio dei Peritelini; in particolare gli Amici e Colleghi Roman Boroveč, di Smidary (Rep. Ceka), Enzo Colonnelli, di Roma, Giuseppe B. Osella, di Verona, Carlo Pesarini, Conservatore del Museo Civico di Storia Naturale di Milano, Roberto Poggi, Conservatore Onorario e già Direttore del Museo Civico di Storia Naturale "G. Doria" di Genova, ed Eric Rouault, di Toulaud (Francia), nonché Fabrizio Rigato e Michele Zilioli, Conservatore e Tecnico del Museo di Milano, per le fotografie.

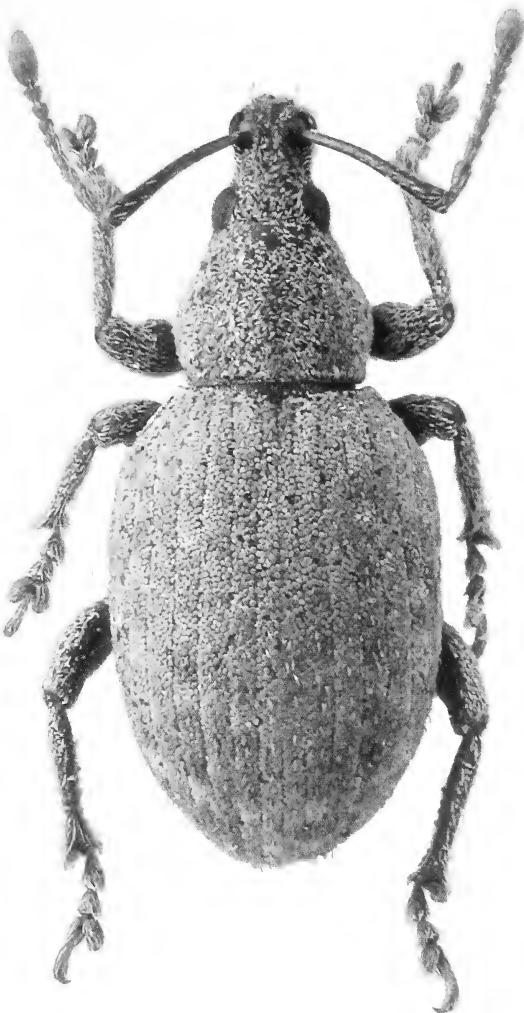


FOTO 20

Habitus delle specie tipo dei generi di Peritelini paleartici:
Pseudoperitelus globulicollis (Seidlitz) maschio di Hispania; lungh. 5,3 mm.

BIBLIOGRAFIA

ALONSO-ZARAZAGA, M.-A. & LYAL, C. H. C. 1999. A world catalogue of families and genera of Curculionoidea (Insecta: Coleoptera) (excepting Scolytidae and Platypodidae). *Entomopraxis*, Barcelona, 315 pp.

ALZIAR, G. 1977. Description de deux espèces nouvelles de *Troglorhynchus* Schmidt de la région niçoise. *Entomops*, Nice 41: 1-7.

ALZIAR, G. & LEMAIRE, J.-M. 2008. Les Curculionides cavernicoles de la région niçoise (France). Description d'un genre nouveau, *Troglorhythmus* (Coleoptera: Curculionidae). *Biocosme Mésogén*, Nice 25 (2): 71-82.

ALZIAR, G. & LEMAIRE, J.-M. 2010. Les Curculionides cavernicoles de la région niçoise, II. Description de *Troglorhynchus curtii* n. sp. (Coleoptera, Curculionidae). *Biocosme Mésogéen*, Nice 27 (3): 94-100.

ANDERSON, R. S. 2002. 131. Curculionidae Latreille 1802, In: *American Beetles. Volume 2. Polyphaga: Scarabaeoidea through Curculionoidea*. Arnett R.H. Jr., Thomas M. C., Skelley P. E. and Frank J.H., Eds.. CRC Press, Boca Raton, I-XIV + 861 pp.

BELLÒ, C., PESARINI, C. & PIEROTTI, H. 1997. Due nuove *Pseudomeira* delle isole tirreniche minori (Coleoptera Curculionidae). *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano* 137 (I-II): 69-73.

O'BRIEN, C.W. & WIBMER, G. J. 1982. Annotated checklist of the weevils (Curculionidae sensu lato) of North America, Central America, and the West Indies (Coleoptera: Curculionidae). *Memoirs of the American Entomological Institute* 34: 1-382.

HOFFMANN, A. 1950. Faune de France. 52. Coléoptères Curculionides (Première Partie). *Librairie de la Faculté des Sciences, Paris*, 486 pp.

HOFFMANN, A. 1961. Coléoptères phytophages inédits ou critiques de la région paléarctique. *Bulletin de la Société entomologique de France* 66: 32-39.

HUSTACHE, A. 1935. Peritelini du Nord de l'Afrique (Coleoptera-Curculionidae). *Bulletin de la Société Royale Entomologique d'Egypte*: 200-247.

LACHOWSKA, D., ROZEC, M., HOLEKOVA, M. & KAJTOCH, Ł. 2006. Cytogenetic differences between *Peritelus familiaris* and *Centricnemus leucogrammus* (Coleoptera: Curculionidae: Entiminae: Peritelini). *European Journal of Entomology* 103: 687-690.

MELONI, C., PIEROTTI, H. & BELLÒ, C. 2001. Peritelini nuovi o interessanti della fauna tirrenica. IX. Tre nuove *Pseudomeira* di Sardegna. (Coleoptera, Curculionidae). *Fragmента entomologica* 33 (1): 119-127.

OSELLA, G. & GREGORI, L. 1989. Ricerche zoologiche della Nave Oceanografica "Minerva" (C.N.R.) sulle isole circumsarde. VI. Il popolamento a Coleotteri Curculionoidea (Insecta). *Annali del Museo Civico di Storia Naturale "G. Doria"*, Genova 87: 373-492.

PÉRICART, J. 1963. Description de trois nouvelles espèces de *Peritelus* et observations diverses (Coleoptera Curculionidae). *Atti della Società Italiana di Scienze Naturali e Museo Civico di Storia Naturale CII*: 35-46.

PESARINI, C. 1972. Ricerche coleotteroologiche sul litorale ionico della Puglia, Lucania e Calabria. Campagne 1956-1957-1958. Coleoptera Curculionidae. *Bollettino della Società Entomologica Italiana* 104 (4-5): 75-85.

PIEROTTI, H. 2006. Contributi al riordinamento sistematico dei Peritelini paleartici. VI.(VII.) *Peritelus* e *Pseudomeira* di Tunisia (Coleoptera, Curculionidae). *Bulletin de la Société Entomologique de France* 111 (1): 21-34.

PIEROTTI, H. 2009a. Peritelini nuovi o interessanti della fauna tirrenica. X. *Pseudomeira exigua* (Stierlin, 1861) e specie vicine (Coleoptera: Curculionidae: Entiminae). *Beiträge zur Entomologie* 59 (2): 481-488.

PIEROTTI, H. 2009b. Peritelini nuovi o interessanti della fauna paleartica. IX. *Otiorhynchus minimus* Stierlin, 1861, bona species del gen. *Meirella* Pierotti & Bellò, 1997 (Coleoptera, Curculionidae, Entiminae). *Doriana, suppl. agli Annali del Museo Civico di Storia Naturale "G. Doria"* VIII, 363: 1-7.

PIEROTTI, H. 2010a. Peritelini nuovi o interessanti della fauna w-mediterranea. XI. Inquadramento sistematico di *Peritelus ruficornis* Brisout, 1863. (Coleoptera, Curculionidae, Entiminae). *Bulletin de la Société Entomologique de France* 115 (2): 203-207.

PIEROTTI, H. 2010b. Peritelini nuovi o interessanti della fauna w-mediterranea. XIII. Rivalutazione come bona species di *Peritelus coniceps* Desbrochers, 1897 e suo inquadramento sistematico. (Coleoptera, Curculionidae, Entiminae). *Bulletin de la Société Entomologique de France* 115 (4): 505-507.

PIEROTTI, H. & BELLÒ, C. 1992. Nuovi Peritelini della fauna italiana (Coleoptera Curculionidae). *Fragmента Entomologica* 23 (2): 369-387.

PIEROTTI, H. & BELLÒ, C. 1994.a. Peritelini nuovi o interessanti della fauna tirrenica (Coleoptera: Curculionidae Polydrosinae). *Il Naturalista Siciliano*. Serie IV XVIII (1-2): 107-122.

PIEROTTI, H. & BELLÒ, C. 1994.b. Peritelini nouveaux ou intéressants de la faune thyrrénienne (Coleoptera Curculionidae Polydrosinae). *L'Entomologiste* 50 (5): 289-296.

PIEROTTI, H. & BELLÒ, C. 1996. Le *Pseudomeira* della fauna sardo-corsa (Coleoptera, Curculionidae, Polydrosinae). *Biogeographia* XVIII (1995): 523-545.

PIEROTTI, H. & BELLÒ, C. 1997. Contributi al riordinamento sistematico dei Peritelini paleartici. I. Istituzione di tre nuovi generi e descrizione di una nuova specie (Coleoptera Curculionidae). 5. Contributo alla conoscenza della Tribù Peritelini. *Bollettino del Museo regionale di Scienze naturali di Torino* 15 (1): 157-177.

PIEROTTI, H. & BELLÒ, C. 1998. Present knowledge of Palaearctic Peritelini (Coleoptera: Curculionidae: Polydrosinae). (pp. 81-108). In: *Taxonomy, ecology and distribution of Curculionoidea (Coleoptera: Polyphaga)*. XX I.C.E. (1996, Firenze, Italy). COLONNELLI, E., LOUW, S. AND OSELLA, G. ed. *Atti del Museo regionale di Scienze naturali di Torino*.

PIEROTTI, H. & BELLÒ, C. 1999. Contributi al riordinamento sistematico dei Peritelini paleartici. II. *Pseudosimo* n.gen. (Coleoptera, Curculionidae). *Bulletin de la Société Entomologique de France* 104, 5: 413-418.

PIEROTTI, H. & BELLÒ. C. 2000. Contributi al riordinamento sistematico dei Peritelini paleartici. III. Revisione del gen. *Dolichomeira* Solari, 1954 (Coleoptera Curculionidae Polydrosinae). *Bollettino del Museo Civico di Storia Naturale di Verona* 24: 129-192.

PIEROTTI, H. & BELLÒ, C. 2001a. Peritelini nuovi o interessanti della fauna tirrenica. VI. I Peritelini di Corsica (Coleoptera, Curculionidae). *Bulletin de la Société Entomologique de France* 106 (1): 19-34.

PIEROTTI, H. & BELLÒ, C. 2001b. Contributi al riordinamento sistematico dei Peritelini paleartici. IV. *Borovecia gadorensis* n.gen., n.sp. (Coleoptera, Curculionidae). *Bulletin de la Société Entomologique de France* 106 (2): 177-180.

PIEROTTI, H. & BELLÒ, C. 2004a. Contributi al riordinamento sistematico dei Peritelini paleartici. V. Istituzione di un nuovo genere e descrizione di due nuove specie. *Revue suisse de Zoologie* 111 (3): 585-598.

PIEROTTI, H. & BELLÒ, C. 2004b. Peritelini nuovi o interessanti della fauna paleartica. VIII. *Pseudomeira* balcaniche (Coleoptera Curculionidae Entiminae). *Revue suisse de Zoologie* 111 (4): 915-919.

PIEROTTI, H. & BELLÒ, C. 2006. Contributi al riordinamento sistematico dei Peritelini paleartici. VII. Revisione del genere *Simo* Dejean, 1821, con descrizione di un nuovo genere e di dieci nuove specie (Coleoptera: Curculionidae: Entiminae). *Snudebiller 7, Studies on taxonomy, biology and ecology of Curculionoidea. Curculio-Institute, Mönchengladbach* (articolo rinvenibile in "(CD):/Data/7text 116.rtf").

PIEROTTI, H., BELLÒ, C. & ALONSO-ZARAZAGA, M. A. 2010. Contribution to the systematic rearrangement of the Palaearctic Peritelini. VI. A synthesis of the Spanish Peritelini (Coleoptera: Curculionidae: Entiminae). *Zootaxa* 2376: 1-96.

PIEROTTI, H. & ROUAULT, E. 2010. Peritelini nouveaux ou intéressants de la faune méditerranéenne occidentale. XV. Deux nouvelles espèces du genre *Meira* Jacquelin du Val, 1852 du sud de la France. (Coleoptera, Curculionidae, Entiminae). *Bulletin de la Société Entomologique de France* 115 (3): 387-391.

ROUDIER, A. 1958. Artropodos y moluscos de las Columbretes. *Miscelànea Zoològica* I (1): 20-26.

SOLARI, F. 1950. Curculionidi nuovi o poco conosciuti della fauna paleartica (Col. Curc.). XV. Sinonimie e nuove specie. *Memorie della Società Entomologica Italiana* XXIX: 28-51.

SOLARI, F. 1955. Proposta di un riordinamento delle Tribù degli Otiorhynchini e dei Peritelini e creazione di tre nuovi generi di questi ultimi (Col. Curculionidae). *Memorie della Società entomologica Italiana* 33 (1954): 33-63.

WINKLER, A. 1932. Catalogus Coleopterorum regionis palaearcticae. Pars 12: 1393-1520. A. Winkler, Wien.

**A new species and additional records of the genus
Lathrobium Gravenhorst, 1802 from Palaearctic region
(Coleoptera: Staphylinidae: Paederinae)**

Sinan ANLAŞ

Celal Bayar University, Alaşehir Vocational School,

TR-45600, Alaşehir, Manisa, Turkey.

E-mail: sinan.anlas@gmail.com

A new species and additional records of the genus *Lathrobium* Gravenhorst, 1802 from Palaearctic region (Coleoptera: Staphylinidae: Paederinae). - *Lathrobium matalini* sp. n. from southern Kazakhstan is described, illustrated and distinguished from related congeners. Additional records of 18 *Lathrobium* species, among them four new country records, are reported from Azerbaijan, Iraq, Kazakhstan, Russia and Turkey.

Keywords: Coleoptera - Asia - Europe - new species - new records.

INTRODUCTION

The *Lathrobium* Gravenhorst, 1802 is one of the largest genera of the subfamily Paederinae. According to the Palaearctic catalogue (Smetana, 2004) and recent contributions (Assing, 2007a, b, c, 2008, 2009; Shavrin, 2007; Watanabe, 2008; Ryvkin, 2011; Peng *et al.*, 2012) to the genus, *Lathrobium* is represented in the Palaearctic region by more than 260 valid (sub-) species. 12 species of *Lathrobium* are known from Kazakhstan, two of which have been reported only from this country (Assing, 2008, 2009). In Turkey, 16 species have been recorded, five of them endemic (Anlaş, 2009). More than 50 species are known from Russia and three species have been recorded from Azerbaijan. No *Lathrobium* species have been reported from Iraq up to now (Smetana, 2004).

Lathrobium species occur in many terrestrial places, most often in leaf litter, under stones, as well as near river banks and lakeshores. In view of the previous taxonomic confusion in the genus, many synonymies were established. Thus, many literature records must be considered doubtful. In generally, *Lathrobium* species are highly variable regarding many external characters (e.g. body size, relative density of puncturation, microsculpture), even in specimens from the same locality. One of the main reasons for the high degree of synonymy is an underestimation of intraspecific variation. Especially the widespread species were found to be extremely variable. According to Assing (2007b), the morphology of the male sexual characters, however, is remarkably diverse and consequently of high taxonomic significance. For that reason, the species of *Lathrobium* are readily distinguished by the highly distinctive shape of the aedeagus. But, on the contrary, in some groups females of *Lathrobium*

species have good characters, thus the female sexual characters could be used for identification.

The present paper is based on an examination of material of the genus *Lathrobium* from Kazakhstan, Azerbaijan, Iraq, Russia and Turkey, including one species new to science and some records of zoogeographic interest. *Lathrobium bernhaueri* Koch, 1937 and *L. elongatum* (Linnaeus, 1767) are reported from Azerbaijan, *L. brunnipes* (Fabricius, 1793) from Turkey, and *L. furcatum* Czwalina, 1888 from Iraq for the first time.

MATERIAL, METHODS, AND DEPOSITORIES

The material referred to in this study is deposited in the following collections:
 cAnl author's private collection
 cKha private collection of Eduard Khachikov, Rostov-on-Don, Russia

The following abbreviations are used for the measurements, which are given in mm:

AL length of antenna; AW maximal width of abdomen; EL length of elytra from apex of scutellum to posterior margin; EW combined width of elytra; HL head length from anterior margin of clypeus to posterior margin of head; HW head width (including eyes); ML length of aedeagus from apex of ventral process to base; PL length of pronotum along median line; PW maximal width of pronotum; TL total body length.

RESULTS

Lathrobium bernhaueri Koch, 1937

MATERIAL STUDIED: 1♂, AZERBAIJAN, Lankaran, environs Dashytuk and Apo vill., 16.VI.2007, leg. Kasatkin (cAnl).

DISTRIBUTION: According to Smetana (2004), the known distribution of *L. bernhaueri* is confined to Georgia, South European territory of Russia, and Turkey. This species is here recorded from Azerbaijan for the first time.

Lathrobium brunnipes (Fabricius, 1793)

MATERIAL STUDIED: 1♂, RUSSIA, Rostov region, Veshenskaya vill., 05.IX.1999, leg Khachikov (cAnl). – 1♀ 1♂, TURKEY, Trabzon province, Maçka, Sümela Manastırı 3 km NW, 14.V.2011, leg Anlaş & Özgen (cAnl).

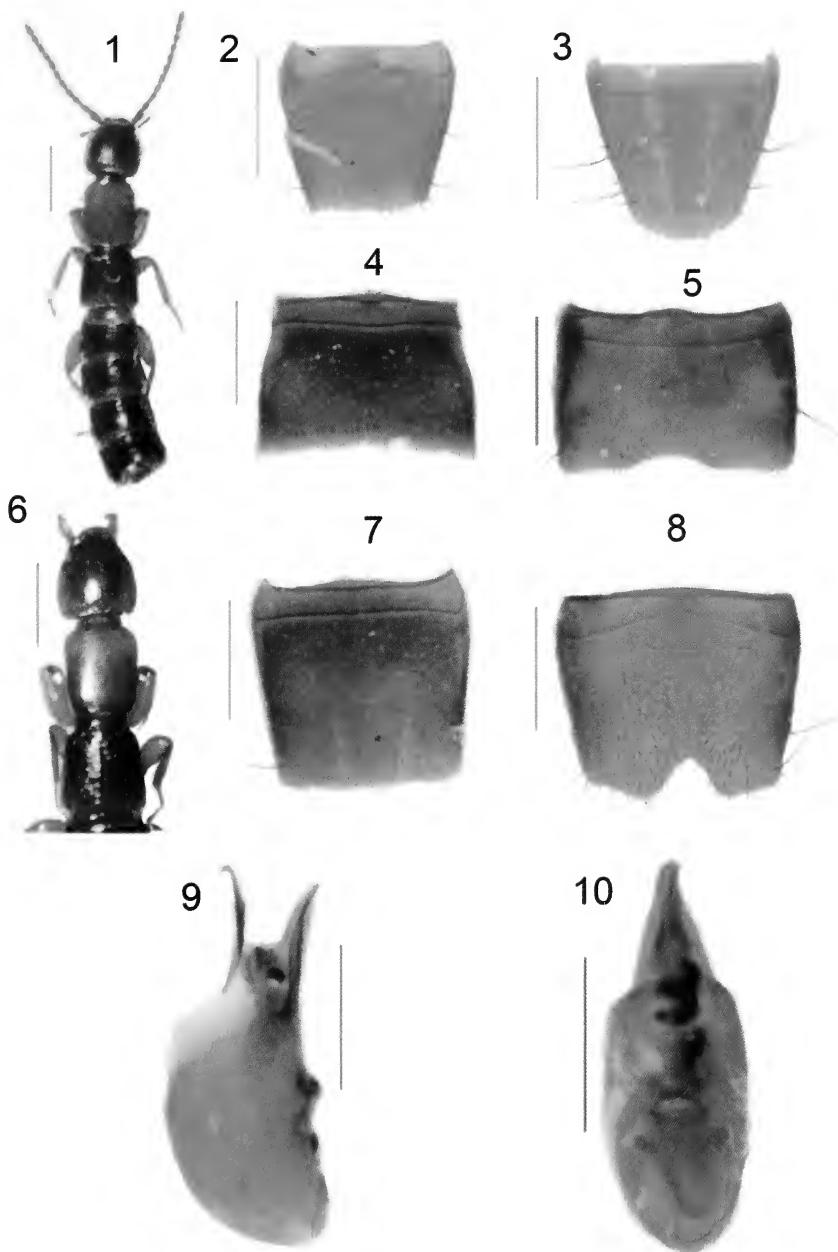
DISTRIBUTION: *L. brunnipes* is widespread in Europe, European part of Russia, Crimea, Caucasus, Ural, Kazakhstan, Siberia and Far East (Smetana, 2004; Shavrin, 2007; Assing, 2009). This species is here reported from Turkey for the first time.

Lathrobium caspicum Koch, 1938

Fig. 11

MATERIAL STUDIED: 1♂, AZERBAIJAN, Astara, Motlayatag vill., 2-6.VI.2006, leg. Snegovaya (cAnl).

DISTRIBUTION: This species is known from only Azerbaijan and Iran (Smetana, 2004; Assing, 2009).



FIGS 1-10

Lathrobium matalini n. sp. (1) Habitus. (2) Female tergite VIII. (3) Female sternite VIII. (4) Male tergite VII. (5) Male sternite VIII. (6) Forebody. (7) Male tergite VIII. (8) Male sternite VIII. (9) Aedeagus, lateral view. (10) Aedeagus, ventral view. Scale bars: 1.0 mm (1 and 2); 0.5 mm (2-5 and 7-10).

***Lathrobium dimidiatipenne* Bernhauer, 1910**

MATERIAL STUDIED: 1♂, RUSSIA, Rostov region, Sholokhovskii distr., Elanskaya vill., 23.VII.2002, leg. Khachikov (cAnl). – 2♂, RUSSIA, Krasnodar province, Anopsky distr., B. Utrish vill., 28.VIII.2006, 1♂, same data but 17-22.VIII.2008, leg. Khachikov (cAnl; cKha).

DISTRIBUTION: This species is known from Ukraine, South European territory of Russia, Russian Far East, East Siberia, Kazakhstan, Mongolia and Turkey (Smetana, 2004; Assing, 2009).

***Lathrobium elongatum* (Linnaeus, 1767)**

Fig. 12

MATERIAL STUDIED: 1♂, AZERBAIJAN, northwestern Azerbaijan, Ismailinsky Nat. Reserv., Valyasin vill., 26.VI.2003, leg. Nabozhenko (cAnl). – 1♀ 1♂, RUSSIA, Rostov region, Krivansky vill., 02.V.1997, leg. Shokhin (cAnl, cKha). – 1♂, TURKEY, Osmaniye province, Bahçe, Inderesi 2 km NW, 980 m 37°15'55"N, 36°37'04"E, 15.XI.2010, leg. Anlaş (cAnl).

DISTRIBUTION: Europe, European part of Russia, Iran, Turkey, Kazakhstan, Siberia (Smetana, 2004; Shavrin, 2007). In Turkey, the exact locality of this species has not been cited by previous studies (Smetana, 2004; Anlaş, 2009). *L. elongatum* is recorded from Azerbaijan for the first time.

***Lathrobium eppelsheimi* Czwalina, 1888**

Fig. 13

MATERIAL STUDIED: 1♂, RUSSIA, Krasnodar province, Apsheronsk distr., Mezmai vill., 16.VIII.1992, leg. Khachikov (cAnl). – 1♂, RUSSIA, Krasnodar province, Maikop distr., Nikel vill., 20.VII.1984, leg. Khachikov (cAnl).

DISTRIBUTION: This species is endemic in northwestern Caucasus region (Solodovnikov, 2001; Smetana, 2004).

***Lathrobium flavipes* Stephens, 1833**

MATERIAL STUDIED: 1♂, RUSSIA, Rostov region, Ust-Donetsk distr., Krymsky vill., 02.V.1997, leg. Khachikov (cAnl). – 1♂, RUSSIA, Rostov region, Romanovskaya vill., 19.VIII.1989, leg. Shkuratov (cAnl).

DISTRIBUTION: This species is known from Central and South European territory of Russia, Siberia, Ukraine and Kazakhstan (Smetana, 2004; Assing, 2009).

***Lathrobium fovulum* Stephens, 1833**

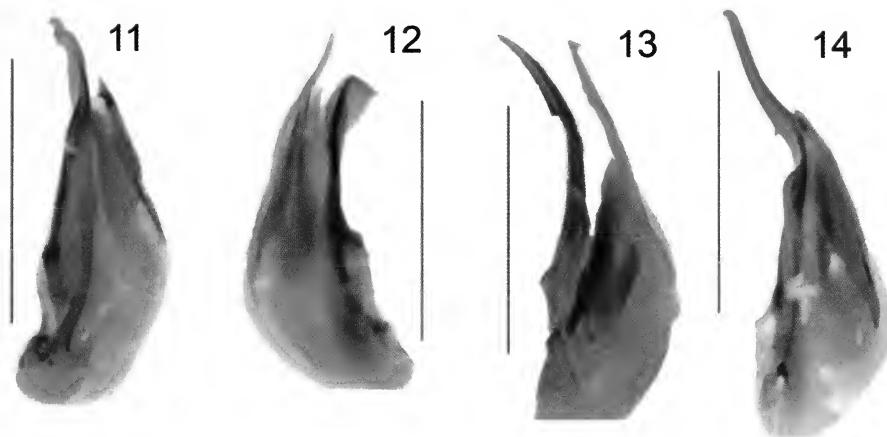
MATERIAL STUDIED: 1♂, RUSSIA, Rostov region, Veshenskaya vill., 17-22.VII.1999, leg. Khachikov (cAnl).

DISTRIBUTION: According to Smetana (2004) and Assing (2009), the distribution of *L. fovulum* ranges from Western Europe eastwards to West Siberia and also Kazakhstan.

***Lathrobium fulvipenne* (Gravenhorst, 1806)**

MATERIAL STUDIED: 1♂, RUSSIA, Rostov region, Veshenskaya vill., 17-22.VII.1999, leg. Khachikov (cAnl). – 1♂, TURKEY, Gümüşhane, Torul, Kadırga Yaylası road, 2037 m, 40°41'00"N, 39°24'30"E, 14.V.2011, leg. Anlaş (cAnl).

DISTRIBUTION: This widespread species was previously known only from few localities in Turkey and Russia (Smetana, 2004; Anlaş, 2009; Assing, 2009).



FIGS 11-14

Aedeagi, lateral views. (11) *Lathrobium caspicum* Koch. (12) *L. elongatum* (Linnaeus). (13) *L. eppelsheimi* Czwalina. (14) *L. marani* Koch. Scale bars: 1.0 mm (11-14).

Lathrobium furcatum Czwalina, 1888

MATERIAL STUDIED: 1♂, IRAQ, northern Iraq, ca 10 km NW Sulaimaniyah province, 17-20.V.2008, leg. Sevinç (cAnl). – 2♂, TURKEY, Erzincan, Üzümlü, Küçük Sarıkaya creek bank, 1713 m, 39°14'20"N, 39°50'02"E, 18.V.2011, leg. Anlaş, Özgen & Khachikov.

DISTRIBUTION: *L. furcatum* is widespread from Turkey, Iran and Caucasus region across Balkans into the southeast of Central Europe (Smetana, 2004; Assing, 2009; Anlaş *et al.*, 2011). But the exact locality of this species has not been cited from Turkey by previous studies (Coiffait, 1982; Smetana, 2004; Anlaş, 2009). The species is here reported from Iraq for the first time.

Lathrobium geminum Kraatz, 1857

MATERIAL STUDIED: 1♂, RUSSIA, Rostov region, Ust-Donetsk distr., Razdorskaya vill., 01.VIII.1994, leg Khachikov (cAnl).

DISTRIBUTION: According to Smetana (2004) and Assing (2009), the known distribution of *L. geminum* is confined to Europe, European part of Russia, Caucasus, East and West Siberia, Kazakhstan, Turkmenistan and Uzbekistan.

Lathrobium impressum Heer, 1841

MATERIAL STUDIED: 2♂, exs., RUSSIA, Rostov region, Veshenskaya vill., 16-22.VII.1995, leg Khachikov (cAnl).

DISTRIBUTION: This species widespread in Europe and Siberia (Smetana, 2004).

Lathrobium longulum Koch, 1937

MATERIAL STUDIED: 1♂, RUSSIA, Rostov region, Rostov-on-Don city., 05.V.1991, leg Khachikov (cAnl).

DISTRIBUTION: According to Shavrin (2007) and Assing (2009), *L. longulum* is known from north and central Europe, European part of Russia, Crimea, Caucasus, Siberia, Russian Far East, Kazakhstan and Mongolia.

***Lathrobium marani* Koch, 1939**

MATERIAL STUDIED: 1♂, KAZAKHSTAN, Yuzhno-Kazakhstan region, Boralday range, Satur mts, hole of the Kulan nv., high Krasnye Vorota pass, 1000 m, 42°35'13"N, 70°26'53"E, 05.IV.2010, leg. Matalin. – 1♂, KAZAKHSTAN, Yuzhno-Kazakhstan region, South bank of Kyzylkol lake, right bank Ushbas riv., near mouth 1200 m, 43°43'56"N, 69°30'48"E, 31.III.2010, leg. Matalin.

DISTRIBUTION: The known distribution of *L. marani* is confined to Kazakhstan, Tajikistan, and Kyrgyzstan (Smetana 2004; Assing, 2009). Due to misleading illustrations of the aedeagus of *L. marani* in Coiffait (1982), it has been given a more accurate figure of the aedeagus in Fig. 14.

***Lathrobium pallidipenne* Hochhuth, 1851**

MATERIAL STUDIED: 1♂, RUSSIA, Rostov region, Aleksandrovskyi forestr, 16.X.1989, leg. Arzanov (cAnl). – 4♀ 2♂, TURKEY, Northeastern Anatolia, 15 km N Gümüşhane province, Cehennem Valley, Manastır road, 15.V.2011, leg. Anlaş, Khachikov & Özgen (cAnl).

DISTRIBUTION: The known distribution of *L. pallidipenne* is confined to Europe, and Turkey (Smetana 2004). In Turkey, this species was known only one locality in Eskişehir province of central Anatolia (Anlaş, 2009).

***Lathrobium pallidum* Nordmann, 1837**

MATERIAL STUDIED: 1♂, RUSSIA, Rostov region, Donskoi forestry (=Donieschoz), 01.VI.1996, leg Khachikov (cAnl).

DISTRIBUTION: This species is known from Europe including South European territory of Russia (Smetana, 2004).

***Lathrobium vitalyi* Assing, 2008**

MATERIAL STUDIED: 1♂, KAZAKHSTAN, Yuzhno-Kazakhstan region (southern Kazakhstan), Taskara mountains, 1100-1200 m, 2,5 km SW Novonikolaevka village (=Jabagly), 42°24'49"N, 70°27'23"E, 24.III.2010, leg. Makarov & Matalin (cAnl).

DISTRIBUTION: This recently described species was previously known from only its type locality in southern Kazakhstan (Assing, 2008).

***Lathrobium wrasei* Schülke, 1990**

MATERIAL STUDIED: 1♀ 1♂, TURKEY, Konya province, Beysehir, Çamlık, Devrend, 13.VII.2010, leg. Kunt (cAnl).

DISTRIBUTION: The species had been known from Georgia (Schülke, 1990). In Turkey, a recent record of this species was known only from Antalya province (Anlaş & Rose, 2009).

***Lathrobium matalini* sp. n.**

(Figs 1-10)

HOLOTYPE: ♂, KAZAKHSTAN, "KZ. Yuzhno-Kazakhstan region, south bank of Kyzylkol lake, right bank Ushbas riv., near mouth 1200 m, 43°43'56"N, 69°30'48"E, 31.III.2010, leg. Matalin / Holotypus ♂, *Lathrobium matalini* sp. n. det. S. Anlaş 2011" (cAnl).

PARATYPES: 1♀, same data as holotype (cAnl). – 1♂, KAZAKHSTAN, Yuzhno-Kazakhstan region, Arystandi riv., upstream, 7,5 NNE of Shaklak mount., 400 m, 43°15'17"N, 69°26'30"E, 24-30.III.2010, leg. Matalin (cKha).

ETYMOLOGY: The species is dedicated to Dr. A. V. Matalin, Russia, a specialist on Coleoptera, Carabidae, who collected the new species.

DESCRIPTION: Measurements (in mm) and ratios (range; n=3): AL: 2.08-2.22; HL: 0.84-1.01; HW: 0.80-0.92; PL: 0.90-1.12; PW: 0.72-0.85; EL: 0.88-1.00; EW: 0.81-0.92; AW: 0.96-1.08; ML: 1.00-1.05 (n=2); TL: 6.9-7.1; HL/HW: 1.05-1.10; PW/HW: 0.90-0.92; PW/PL: 0.80-0.82; EL/PL: 0.89-0.98; EW/PW: 1.08-1.13; EL/EW: 1.09; AW/EW: 1.17-1.19.

Habitus as in Fig. 1. Species of moderate size (see measurements). Coloration: head reddish brown, pronotum reddish, elytra blackish but posterior margin of elytra dark brown, abdomen black, antennae reddish yellow, legs yellowish.

Head slightly oblong (see measurements, ratio HL/HW and Figs 1, 6); eyes moderately small (Fig. 6), approximately 1/4 the length of postocular region in dorsal view; punctuation distinct, but not very coarse, moderately sparse; punctuation in central dorsal region even wider and larger, surface with distinct; interstices in lateral dorsal areas approximately twice as wide as diameter of punctures, antennae relatively long; antennomere III longer than II; antennomeres IV-X almost 1.5 times longer than wide; antennomere XI almost twice as long as wide (Fig. 1).

Pronotum narrower than head (see ratio PW/HW, Figs 1, 6) and distinctly oblong (see ratio PW/PL and Figs 1, 6); lateral margins subparallel in dorsal view; punctuation slightly coarser than that of head; interstices on average approximately 1.5 times as wide as diameter of punctures; microsculpture absent.

Elytra shorter than pronotum (see ratio EL/PL, Figs 1, 6); and approximately 1.1 times as wide (see ratio EL/EW, Figs 1, 6); punctuation well-defined, punctuation finer, shallower, denser, and less defined than that of pronotum. Hind wings reduced.

Abdomen wider than elytra (see ratio AW/EW, Figs. 1, 6); punctuation fine and moderately dense; microsculpture shallow, microsculpture present, but very shallow; posterior margin of tergite VII without palisade fringe.

♂: sternite VII modified (Fig. 5), posterior margin moderately concave in the middle, with black modified setae; sternite VIII shaped as in Fig. 8, posterior margin concave, in the middle with cluster of black modified setae, posterior margin in the middle with broadly V-shaped excision; aedeagus distinctive especially in lateral view and weakly asymmetric ventral process (Figs 9, 10).

♀: female tergite and sternite VIII as Figs 2 and 3.

COMPARATIVE NOTES: The new species is readily distinguished from all its congeners by the characteristic shape of the aedeagus, in particular the shape of the lateral process, and the modifications of the male sternites VII and VIII. From other congeners recorded from Middle Asia and adjacent regions, and with similarly short elytra and reduced hind wings, it is additionally separated as follows:

- from *L.kastcheevi* Assing, 2009 (southern Kazakhstan) by the different coloration (in *L. kastcheevi*; head, pronotum, and abdomen blackish; elytra reddish, anterior third distinctly infuscate);

- from *L. vitalyi* Assing, 2008 (southern Kazakhstan) by the different coloration of the elytra (*L. vitalyi* elytra reddish);

- from *L. lackneri* Assing, 2009 (southern Kyrgyzstan) by the different coloration (in *L. lackneri* body black, with elytra dark reddish brown);

- from *L. caspicum* Koch, 1938 (Azerbaijan and Iran) by the different coloration (in *L. caspicum* head and pronotum black, elytra bicoloured, with the anterior half black and the posterior half reddish);
- from *L. marani* Koch, 1939 (Kazakhstan, Tajikistan, and Kyrgyzstan) by its smaller size and the reddish pronotum (in *L. marani* black);
- from *L. bucharensis* Koch, 1944 (Uzbekistan) by the reddish pronotum (in *L. bucharensis* blackish); from *L. kuntzeni* Koch, 1939 (Uzbekistan, Iran) by the different coloration (*L. kuntzeni* pronotum black with blueish hue, apex of abdomen reddish);
- from *L. concolor* Motschulsky, 1860 (Uzbekistan, Mongolia, Russian Far East) by smaller size;
- from *L. semirufulum* Bernhauer, 1902 (Kazakhstan, Tajikistan) by its larger size (*L. semirufulum*: approximately 5-5.5 mm) and by completely dark coloration of the abdomen (in *L. semirufulum* apex of abdomen reddish), for illustrations of the aedeagus of *L. semirufulum* see Coiffait (1982: in figs 83C, D); according to Gusalov (1995), these figures refer to *L. semirufulum*, not to *Lobrathium sahlbergi* (Fauvel, 1900), as indicated by Coiffait (1982) (see Assing, 2007b).

DISTRIBUTION: The species was collected in two localities in southern Kazakhstan, in bank of Kyzylkol lake and bank of Arystandi river. It seems most likely that, this species has a restricted distribution.

ACKNOWLEDGEMENTS

I am most grateful to my colleagues for making their staphylinid collections available to me, as well as special thanks to Eduard Khachikov (Rostov) for the generous gift of the holotypes of the species described in this paper.

REFERENCES

- ANLAS, S. 2009. Distributional checklist of the Staphylinidae (Coleoptera) of Turkey, with new and additional records. *Linzer biologische Beiträge* 41 (1): 215-342.
- ANLAS, S. & ROSE, A. 2009. New records of Paederinae (Coleoptera: Staphylinidae) from Turkey. *Acta Zoologica Bulgarica* 61 (2): 209-213.
- ANLAS, S., KHACHIKOV, E. A. & ILJINA, E. V. 2011. New records on the distribution of some species of the subfamily Paederinae (Staphylinidae, Coleoptera) from Asia and Europe. *Acta Zoologica Bulgarica* 63 (2) 205-207.
- ASSING, V. 2007a. New species and additional records of Paederinae and Aleocharinae from Iran (Coleoptera, Staphylinidae). *Deutsche Entomologische Zeitschrift* 54 (2): 179- 193.
- ASSING, V. 2007b. A new species of *Lathrobium* from Kyrgyzstan (Coleoptera, Staphylinidae: Paederinae). *Zootaxa* 1415: 65-68.
- ASSING, V. 2007c. A revision of the microphthalmous *Lathrobium* species of Turkey II. Two new species and an additional record of *L. brignolii* (Insecta: Coleoptera: Staphylinidae: Paederinae). *Entomological Problems* 37: 1-5.
- ASSING, V. 2008. On the taxonomy and zoogeography of some Palaearctic Paederinae and Xantholinini (Coleoptera: Staphylinidae). *Linzer biologische Beiträge* 40 (2): 1237-1294.
- ASSING, V. 2009. New species and additional records of *Lathrobium* and *Tetartopeus* from the Palaearctic region (Coleoptera: Staphylinidae: Paederinae). *Linzer biologische Beiträge* 41: 1269-1283.
- COIFFAIT, H. 1982. Coléoptères Staphylinidae de la région paléarctique occidentale. IV. Sous famille Paederinae. Tribu Paederini 1 (Paederi, Lathrobii). *Nouvelle Revue Entomologie* 12: 1-440.

GUSAROV, V. I. 1995. Novye i maloizvestnye Palearkticheskie stafilinidy (Coleoptera, Staphylinidae). *Entomologicheskoe Obozrenie* 74: 81-96. (In Russian).

PENG, Z., LI, L.-Z. & ZHAO, M.-J. 2012. Taxonomic study on *Lathrobium* Gravenhorst (Coleoptera, Staphylinidae, Paederinae) from Longwangshan Mountain, East China. *ZooKeys* 165: 21-32.

RYVKIN, A. B. 2011. On new and poorly known *Lathrobium* (s.str.) species from Siberia and the Russian Far East (Insecta: Coleoptera: Staphylinidae: Paederinae). *Baltic Journal of Coleopterology* 11 (2): 135-170.

SCHÜLKE, M. 1990. Zwei neue Lathrobii aus Transkaukasien (Coleoptera, Staphylinidae: Paederinae) nebst faunistischen Bemerkungen zu bekannten Arten. *Novius* 10: 217-224.

SHAVRIN, A. V. 2007. Contribution to the knowledge of the genus *Lathrobium* Grav. (Coleoptera, Staphylinidae, Paederinae) of the Baikal region. I. Catalogue of species and a new synonymy. *Baltic Journal of Coleopterology* 7 (2): 173-178.

SMETANA, A. 2004. Subfamily Paederinae Fleming, 1821. In: LÖBL I. & A. SMETANA (eds), Catalogue of Palaearctic Coleoptera. Volume 2. Hydrophiloidea – Histeroidea – Staphylinoidea. Apollo Books, Stenstrup: pp. 579-624.

SOLODOVNIKOV, A. YU. 2001. Revision of the little-known apterous Paederinae (Coleoptera: Staphylinidae) from “Circassia” (North-Western Caucasus), with description of *Lathrobium (Lobrathium) bettae* sp. n. *Russian Entomological Journal* 10 (1): 1-11.

WATANABE, Y. 2008. Two new species of *Lathrobium* (Coleoptera: Staphylinidae) from Mt. Maya-san of Hyōgo Prefecture in Western Honshu, Japan. *Special Publications of the Japan Coleopterological Society* 2: 183-190.

Nachträge zur Pseudoskorionfauna (Arachnida: Pseudoscorpiones) der Höhlen der Insel Santorin (Thera) (Kykladen, Griechenland)

Volker MAHNERT

Muséum d'histoire naturelle de la Ville de Genève, case postale 6434, 1211 Genf 6,
Schweiz.

E-mail: volker.mahnert@wanadoo.fr

Further records of cave-dwelling pseudoscorpions (Arachnida, Pseudoscorpiones) from Santorin (Thera) (Cyclades, Greece). - Additional specimens of *Chthonius (Ephippiochthonius) schmalfussi* Schawaller, 1990 (Chthoniidae) and *Hadoblothrus aegaeus* Beron, 1985 (Syarinidae) are recorded from the caves Zoodochos I and II (type localities) near Kamari. Variability of morphometric and morphological characters is given for both species, *H. aegaeus* is redescribed. *Allocernes powelli* (Kew, 1916) (Chernetidae) is recorded for the first time from caves on Santorin.

Keywords: Taxonomy - morphology - *Hadoblothrus* - *Chthonius* - *Allocernes*.

EINLEITUNG

Die Inselgruppe Santorin besteht aus der gleichnamigen Hauptinsel (offizieller heutiger Name: Thera) und vier kleineren Inseln und liegt in der südlichen Ägäis ($36^{\circ}23'17''N/25^{\circ}27'35''E$) als Teil des vulkanischen Kykladenbogens, der sich von Korinth über Paros und Milos und den Dodekanes-Inseln bis zum türkischen Festland zieht. Die ursprüngliche Insel entstand während und nach dem Einbruch des Kykladenmassiffs im mittleren und jüngeren Pleistozän (Pichler *et al.*, 1972). Die heutige Insel Santorin ist ein Fragment der alten Insel, die durch einen Vulkanausbruch um ca. 1600 v. Chr. zerstört worden ist.

Die systematische Erfassung der Fauna der Insel wurde Ende der 70-Jahre eingeleitet (Schmalfuss *et al.*, 1981), die 6 Arten umfassende Liste der bodenbewohnenden Pseudoskorione von Schawaller (1984) veröffentlicht. 1985 erfolgte durch Beron, in einer vorläufigen Beschreibung ("preliminary description"), der überraschende Nachweis der neuen Art *Hadoblothrus aegaeus* aus den Höhlen "Zoodochos I und II" nahe Kamari (Santorin) und aus der Höhle Agios Ioannis (Insel Iraklia). Die Gattung war anhand einer Art [*H. gigas* (di Caporiacco, 1951)] bislang nur aus Höhlen Apuliens gemeldet. Spätere Aufsammlungen erbrachten den Nachweis einer neuen höhlenbewohnender Art der Familie Chthoniidae [*Chthonius (Ephippiochthonius) schmalfussi* Schawaller, 1990], beschrieben anhand eines einzigen Männchens, worauf insgesamt 8 nominelle Arten von der Insel bekannt waren. Die von Dr. Pierre Strinati

(Cologny/Genf) und Dr. Bernd Hauser (Genf) 2011 und 2012 gesammelten Tiere waren daher von besonderem Interesse und aufschlussreich, da sie eine ausführlichere Beschreibung beider Arten, besonders aber eine genauere Abgrenzung der zwei *Hadoblothrus*-Arten erlauben.

Die im folgenden Text verwendete Trichobothrien-Nomenklatur der Pedipalpen-Schere folgt Chamberlin (1931), die Messungen folgen den Anweisungen Beier's (1963); demzufolge werden bei Chthoniidae die Pedipalpenhand und -schere in Lateralansicht gemessen. Unterschiede zwischen Handhöhe und -breite sind geringfügig.

TAXONOMIE

Chthonius (Ephippiochthonius) schmalfussi Schawaller, 1990

Abb. 1

UNTERSUCHTE EXEMPLARE: MHNG; 2♂ 2♀; Griechenland, Kykladen, Santorin, Kamari, Höhle "Zoodochos I" oberhalb des Dorfes, ca. 170 m, Kalkfelsen; leg. P. Strinati, 29.IX.2011 (Probe Sa-11/1). – 5♂ 2♀ 2Tritonymphen (T); gleiche Daten; leg. B. Hauser (Probe Sa-11/2). – 2♀; Kamari, Grotte "Zoodochos II" oberhalb des Dorfes, ca. 180 m, Kalkfelsen; leg. B. Hauser; 29.IX.2011 (Probe Sa-11/4). – 1♀; gleicher Fundort; 18.IX.2012; leg. B. Hauser (Probe Sa-12/2).

Da diese Art nur anhand des ♂-Holotypus ("Santorin, Höhle bei Kamachi"; Staatl. Museum für Naturkunde, Stuttgart) bekannt ist, seien hier zusätzliche Exemplare (2♂ 3♀ 1T) beschrieben.

BESCHREIBUNG

Adulti: Carapax mit sehr undeutlichen Vorderaugen, Linse sehr flach (nach Aufhellung in Milchsäure erkannt), Tapetum-Reste klein, z.T. sehr undeutlich; Vorderrand mit 4 Randborsten und 1-2 präokularen Mikroborsten; Hinterrand mit 2 Borsten; Tergit I mit 4 (1♂: 5) Borsten, II-IV mit 4, V-IX mit 6, X mit 4, XI mit 6 Borsten; Lobus der Pedipalpencoxa spitz, mit 2 Borsten, Pedipalpencoxa mit 3 Borsten (davon eine diskal inseriert), Coxa I mit 3 Gross- und 3 winzigen Randborsten, II mit 4 Borsten und 12-16 Coxaldornen (bürstenförmig angeordnet), III mit 6 Borsten und 6-10 Coxaldornen, IV mit 6 Borsten; Intercoxaltuberkel mit 2 Börstchen; Genitaloperkel in beiden Geschlechtern mit 10 Borsten (davon 4 diskal stehend), Genitalöffnung des ♂ schmal herzförmig, mit 9-11 Randborsten und 1-3 submarginalen Borsten, je 4 interne Borsten; Genitalorgan des ♀ ohne besondere Merkmale.

Chelizere mit 6 Stammborsten und 1-2 akzessorischen Borsten, fester Finger mit 6-10 grösseren distalen Zähnen, ohne isolierten subdistalen Zahn, beweglicher Finger mit 8-12 grösseren distalen Zähnen, Spinnhöcker klein knopfförmig, Serrula exterior mit 14-17 Lamellen, Rallum mit 11 Borsten.

Pedipalpe der ♂♂ (♀♀ in Klammern): Femur mit 3-6-2-5 Borsten, 9,4-9,8x (9,4-10,1x) länger als breit und 2,4-2,5x (2,6x) länger als Patella; diese 2,9-3,0x (2,6-2,9x) länger als breit; Hand 2,7-2,9x (2,6-2,8x) länger als hoch und 2,8-2,9x (2,6-2,7x) länger als breit; Finger 1,4-1,5x (1,4x) länger als Hand; Schere (Abb. 1a) 6,0-7,1x (6,5-6,6x) länger als hoch und 6,9-7,0x (6,2-6,6x) länger als breit; fester Finger mit 25-28 spitzen Zähnen (2-3 basale etwas kleiner), distal 1 kleiner Lateralzahn vorhanden; beim ♂ proximal der Fingerspitze auf paraxialer Seite eine deutliche Einbuchtung (Empfang der Spitze des beweglichen Fingers); beweglicher Finger mit 9-10 aufrechten spitzen Zähnen (bis halbwegs zwischen *st* und *sb* reichend), anschliessend 9-11 z.T. sehr undeutliche Rudimente; Sensillum an Basis der Zahnlamelle

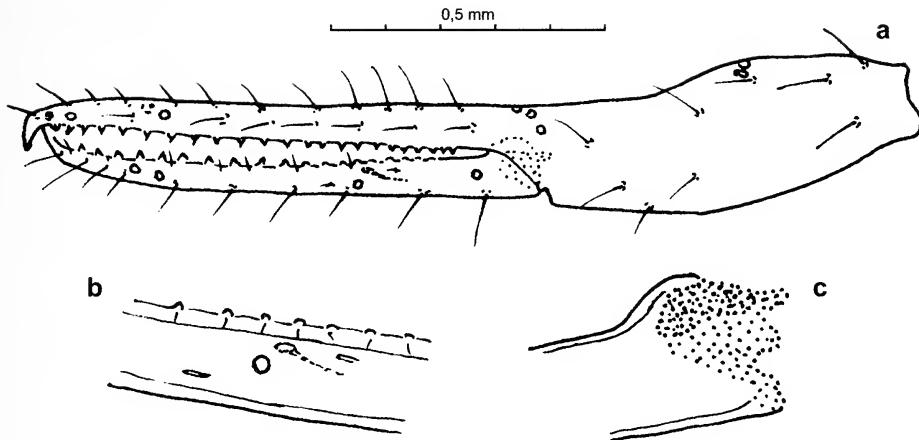


ABB. 1

(a) *Chthonius (Ephippiochthonius) schmalfussi* Schawaller, linke Palpenschere des Weibchens.
 (b) Trichobothrium *sb* mit Sensillum und Spaltorganen (vergrössert). (c) Basis des beweglichen Fingers mit Innenapodem (vergrössert).

undeutlich proximal von *sb*, je ein winziges Spaltorgan proximal und distal von *sb* (Abb. 1b); Innenapodem an Basis gut entwickelt (Abb. 1c). Trichobothrien *eb-esb-ist* in gerader Schräglinie angeordnet.

Laufbein I (δ ♀): Femur 6,0-7,3x länger als hoch und 1,75-1,92x länger als Patella, diese 4,0-4,8x länger als hoch, Tibia 6,0-6,5x, Tarsus 12,6-13,9x länger als hoch und 1,7-1,8x länger als Tibia. Laufbein IV (δ ♀): Femur+Patella 3,0-3,3x, Tibia 5,5-5,8x, Basitarsus 3,4-3,9x, Telotarsus 14,3-15,8x (φ : 14,3-14,9x) länger als hoch und 2,1-2,3x länger als Basitarsus; Basitarsus mit langer Tastborste in Gliedmitte (TS=0,44-0,47), Telotarsus mit Tastborste im basalen Drittel (TS=0,21-0,30).

Masse δ δ (φ φ) in mm: Carapax 0,62-0,64/0,53-0,57 (0,65-0,70/0,57-0,63). Pedipalpe (Länge/Breite): Femur 1,18-1,21/0,12-0,13 (1,21-1,26/0,12-0,14), Patella 0,46-0,51/0,16-0,17 (0,47-0,49/0,16-0,19), Hand 0,65-0,66/0,22-0,24 (Höhe) bzw. 0,23 (Breite) (0,66-0,71/0,24-0,26 bzw. 0,24-0,26), Finger-Länge 0,93-0,96 (0,94-0,98), Scheren-Länge 1,57-1,60 (1,59-1,67). Laufbein I (Länge/Höhe): Femur 0,59-0,60/0,09 (0,60-0,62/0,08-0,10), Patella 0,32-0,34/0,07-0,08 (0,31-0,33/0,07-0,08), Tibia 0,35-0,37/0,05-0,06 (0,36-0,37/0,06), Tarsus 0,64-0,66/0,05 (0,63-0,64/0,05). Laufbein IV (Länge/Höhe): Femur+Patella 0,95/0,31 (0,92-0,98/0,29-0,30), Tibia 0,59-0,61/0,10-0,11 (0,58-0,61/0,11), Basitarsus 0,29-0,31/ 0,08-0,09 (0,31-0,32/0,08-0,09), Telotarsus 0,68-0,69/0,04 (0,67/0,04-0,05).

Tritonymphe: Carapax wie bei Adulti, Vorderaugen mit sehr undeutlichen flachen Linsen; Chätotaxie des Carapax und der Tergite wie bei Adulti. Chelizere mit 5 Stammborsten und 1 akzessorischer Borste, Spinnhöcker klein knopfförmig. Pedipalpen-Hand 2,7x länger als hoch (0,43 mm/0,16 mm); Finger 1,45x länger als

Hand, Länge 0,63 mm; Schere 6,5x länger als hoch (1,06 mm/0,16 mm); fester Finger mit 21 spitzen Zähnen, beweglicher Finger 8 mit spitzen Zähnen und anschliessenden 9 Rudimenten.

BEMERKUNG: Die mir vorliegenden Exemplare stimmen mit der genauen Originalbeschreibung gut überein; allerdings konnte ich das Vorhandensein sehr undeutlicher Vorderaugen feststellen (jedoch erst bei in Milchsäure aufgehellten Exemplaren). Schawaller (1990: 419, Abb. 6) erwähnt auf den Chelizeren nur 5 Stammborsten; alle mir vorliegenden Exemplare weisen deren 6 auf (in seiner Abb. 6 scheint die Borste *dst* - nach Gabbott & Vachon, 1963 - zu fehlen).

Hadoblothrus aegaeus Beron, 1985

Abb. 2-9

UNTERSUCHTE EXEMPLARE: MHNG; 1♂ 1♀ 1T; Griechenland, Kykladen, Santorin; Kamari, Grotte "Zoodochos II" oberhalb des Dorfes, ca. 180 m, Kalkfelsen; leg. B. Hauser; 29.IX.2011 (Probe Sa-11/4). – 1T; gleicher Fundort; leg. B. Hauser; 18.IX.2012 (Probe Sa-12/2).

Die Art wurde von Beron (1985) aus den Höhlen Zoodochos I und II gemeldet; die Typen sind im National Natural History Museum of the Academy of Science, Sofia, deponiert. Die mir vorliegenden Exemplare erlauben die Beschreibung von Adulti beider Geschlechter und auch der Tritonymphe.

BESCHREIBUNG

Adulti: Carapax 1,4-1,5x länger als breit, augenlos, mit 2 flachen, undeutlichen Querfurchen in Mitte und subbasal; Vorderrand in Mitte undeutlich eingebuchtet und desklerotisiert. Chätotaxie: 4/6-8/4/4-5/4; Tergalbeborstung: 4/4-5/6/6/6-7/6-7/6-7/6-7/7/5 (keine Tastborsten); Lobus der Pedipalpencoxa mit 2 Borsten, Pedipalpencoxa mit 5-7 Borsten, Coxa I mit 3-6, II mit 5-6, III mit 5, IV mit 4-5; Genitaloperkel des ♂ mit 41 Borsten, beiderseits einer Einbuchtung zahlreiche engstehende Börstchen (Abb. 7), der des ♀ mit 10 zweireihig angeordneten Borsten; Genitalkammer des ♂ beiderseits mit 3 Eingangsborsten, Lateralsäcke lang, plissiert, Medialsack nicht erkennbar; Genitalorgan des ♀ nicht erkennbar; Chätotaxie der Sternite III-XI: 10-13+2x3-4 Suprastigmalbörtchen/10+2x3/10-12/10-12/0/10/10-11/9-10/9/3 (keine Tastborsten), Drüsenvelder oder auch isolierte sekretorische Borsten fehlen (♂); Analkonus mit 2+2 Börstchen. Pleuralmembran fein plissiert und granuliert.

Chelizere (Abb. 2-3): 5 lange, glatte Stammborsten; fester Finger mit 10-12 aufrechten, spitzen oder gerundeten Zähnen und distalen Granula; beweglicher Finger mit ca. 10 spitzen aufrechten Zähnen (2-3 Mittenzähne leicht vergrössert); Galea winzig, spießförmig, dem Finger anliegend; Rallum (Abb. 3) mit 5 gefiederten Borsten; Serrula exterior mit 32-36 (♂ ♀) Lamellen, Serrula interior mit 27 (♂) Lamellen.

Pedipalpe (Abb. 4, 6): Trochanter distoventral undeutlich granuliert, Femur und Patella glatt, Hand in distaler Hälfte fein granuliert, beide Finger in basaler Hälfte granuliert. Trochanter 4,3x (♂) länger als breit, Femur 8,0x (♂) (♀ 7,7x), Patella 7,0x (6,6x), Stiel 2,4x (♀ 2,5x) länger als Keule; Hand laterobasal mit 7-9 Lanzettborsten, dorsal vom Trichobothrium *ib* mit einer Reihe von 4-5 feinen Börstchen (Abb. 4) (diese sind auch auf der Abbildung bei Beron, 1985: S. 71, erkennbar); mit Stiel 2,4x (2,15x), Schere mit Stiel 7,1x (6,3x), ohne Stiel 6,6x (5,8x) länger als breit, Finger 1,9x (2,0x) länger als Hand mit Stiel; fester Finger mit 139-140 kleinen, spitzen Zähnen, beweglicher Finger mit 119 (127) spitzen Zähnen, in basaler Fingerhälfte gerundet,

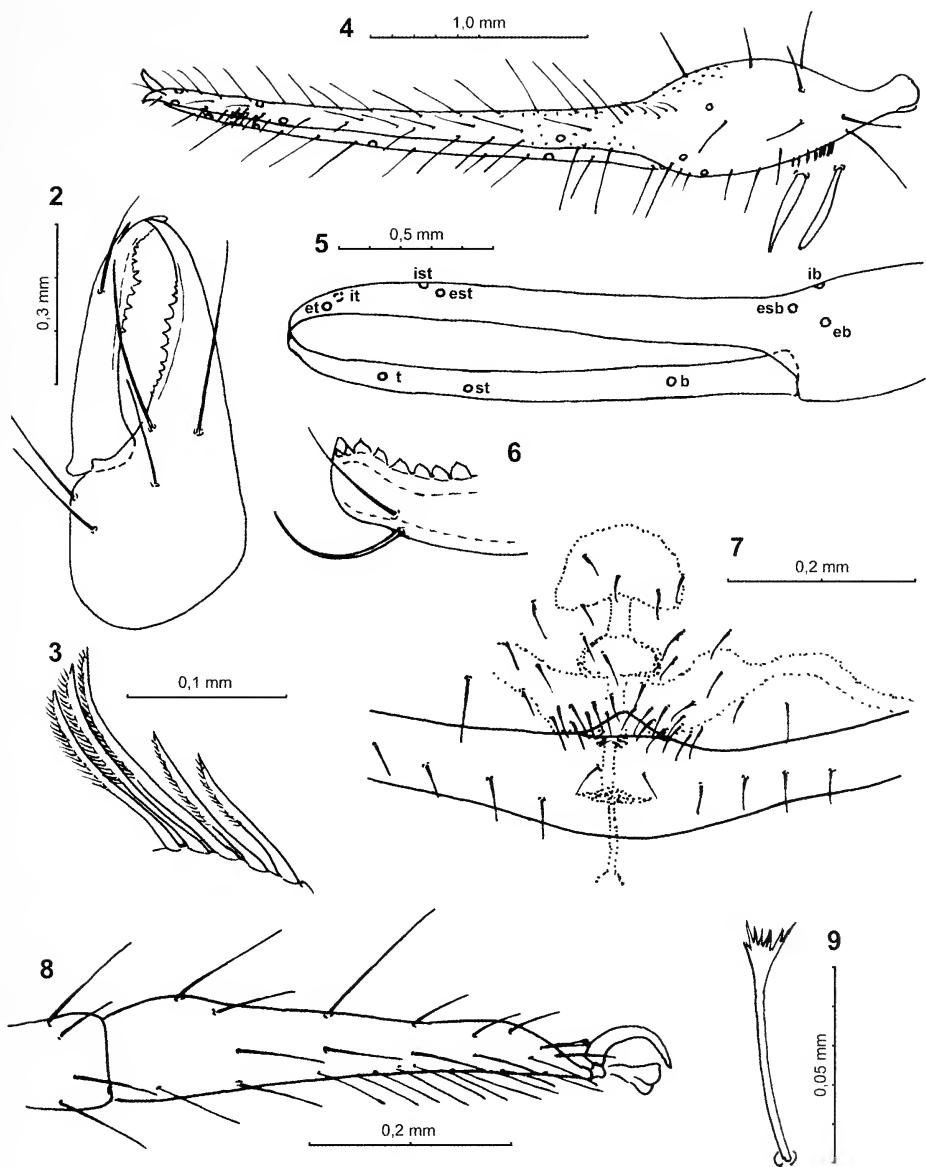


ABB. 2-9

Hadoblothrus aegaeus Beron; Männchen (2-4, 6, 7, 9), Tritonymph (5, 8). (2) Linke Chelizere. (3) Rallum. (4) Linke Pedipalpenschere, Dorsalansicht. (5) Trichobothrienanordnung auf linker Pedipalpenschere, schematische Lateralansicht (*it* hier hinzugefügt, nur auf rechter Schere vorhanden). (6) Spitze des beweglichen Pedipalpenfingers (deutlich vergrößert). (7) Genitaloperkul und Sternit III (Mittelpartie). (8) Telotarsus der Tritonymph. (9) Subterminalborste des Telotarsus IV.

etwas flacher; Zahnreihe mit 3 Zähnen an Fingerspitze breit lateralwärts verlaufend (Abb. 6); sehr kurzer Giftkanal im festen Finger. Trichobothrien (Abb. 4): *t* des beweglichen Fingers lang, dünn, unmodifiziert; *sb* deutlich näher *st* als *b*, 2 Sensillen an Zahnlamelle bei *sb*; *est-ist-et-it* im distalen Viertel des festen Fingers, zwischen *est* und *et* ein längliches Feld von etwa 7 Lanzettborsten.

Laufbein I: Femur 6,7x (♂) (♀ 6,4x) länger als hoch und 1,5x länger als Patella, diese 4,9x (5,1x), Tibia 13,5x (12,2x), Basitarsus 5,7x (5,8x), Telotarsus 8,8x (10,3x) länger als hoch und 1,5x (1,6x) länger als Basitarsus. Laufbein IV: Naht zwischen Femur und Patella senkrecht zur Längsachse, beide Glieder etwa von gleicher Länge, Femur ventral in Nahtnähe mit Spaltorgan, Femur+Patella 8,5x (9,0x), Tibia 16,6x (17,0x), Basitarsus 4,9x (4,7x), Telotarsus 8,3x (8,2x) länger als hoch und 1,4x (1,3x) länger als Basitarsus; Tarsen ohne Tastborsten, in Gliedmitte je 1 leicht verlängerte Borste, ungeteilte Arolien deutlich kürzer als die glatten schlanken Klauen, Subterminalborste apikal verbreitert und dicht gezähnt (Abb. 9).

Masse des ♂ (♀) in mm: Körperlänge 4,57 (4,86); Carapax (Länge/Breite) 1,29/0,93 (1,50/0,98); Pedipalpen (Länge/Breite): Trochanter 1,12/0,26 (-), Femur 2,26/0,28 (2,61/0,39), Patella 2,36/0,34 (2,61/0,39), Stiel-L. 1,68 (1,86), Hand mit Stiel 1,24/0,52 (1,34/0,62), Stiel-L. 0,25 (0,27), Finger-L. 2,45 (2,58), Scheren-L. mit Stiel 3,66 (3,93), ohne Stiel 3,41 (3,64). Laufbein I (Länge/Höhe): Femur 1,23/0,18 (1,34/0,21), Patella 0,81/0,16 (0,86/0,17), Tibia 1,23/0,09 (1,28/0,11), Basifemur 0,52/0,09 (0,50/0,09), Telofemur 0,77/0,09 (0,82/0,08); Laufbein IV: Femur+Patella 1,92/0,23 (2,13/0,24), Tibia 2,23/0,13 (2,38/0,14), Basifemur 0,54/0,11 (0,58/0,12), Telofemur 0,74/0,09 (0,78/0,09).

Tritonymphe (Abb. 5, 8): Carapax 1,5x länger als breit (1,04 mm/0,71 mm), mit 20 Borsten (4/4/4/4/4); Tergitbeborstung: 4/4/4/6/6/7/7/7/6/5; Lobus der Pedipalpen-Coxa mit 2 Borsten, Pedipalpen-Coxa mit 5, Coxae I-IV mit je 4; Sternite III-XI: 6+2x3 Suprastigmalborsten/7+2x2/11/9/10/9/10/8/4; Chelizere mit 5 Stammborsten, Galea sehr kurz spießförmig. Pedipalpen: mit Ausnahme der Hand und der Finger glatt (wie bei Adulti), Trochanter ohne Höcker, 3,4x länger als breit (0,72 mm/0,21 mm), Femur 6,5x (1,45/0,22) (2. *Tritonymphe*: Länge 1,33 mm), Patella 5,6x (1,42/0,25) (2. *Tritonymphe*: Länge 1,32 mm), Stiel 1,39x länger als Keule, Länge 0,84 mm, Hand mit Stiel 2,0x (0,85/0,42), Stiel-L. 0,13, Schere mit Stiel 5,8x (2,48/0,42), ohne Stiel 5,6x länger als breit, Finger 1,9x länger als Hand mit Stiel, Länge 1,63 mm; Hand laterobasal mit 5-6 Lanzettborsten, auf festem Finger zwischen *et* und *et* ein längliches Feld von 10-11 Lanzettborsten; fester Finger mit 106, beweglicher Finger mit 98 in basaler Hälfte abgeflachten Zähnen. Trichobothrien (Abb. 5): 10 (7+3) (bei einer T fehlt auf der linken Schere ausnahmsweise *it*, daher dort 6+3). Laufbein I: Femur 5,6x länger als hoch (0,77/0,14), Patella 3,6x (0,47/0,13), Tibia 10,4x (0,77/0,07), Basifemur 4,8x (0,33/0,07), Telotarsus 4,8x (0,47/0,10); Laufbein IV: Femur+Patella 7,4x (1,24/0,17), Tibia 14,7x (1,34/0,09), Basitarsus 4,5x (0,37/0,08), Telotarsus 4,5x (0,47/0,10). Telotarsus der Laufbeine an Basis leicht blasenartig erweitert (Abb. 8).

BEMERKUNGEN: Anhand dieser Exemplare können die Unterschiede (basierend auf Beier, 1952; Mahnert, 1980; Inzaghi, 1983; Beron, 1985) zwischen den zwei *Hadoblothrus*-Arten nun besser definiert werden. Es sei hervorgehoben, dass Beron

(op. cit.: 71) nur 4 Borsten auf der Chelizeren-Hand zeichnete, die mir vorgelegenen Exemplare weisen deren 5 auf.

Hadoblothrus gigas: Carapax-Vorderrand mit kleinem Epistom, Hinterrand mit 2 Borsten; Pedipalpen: Femur 7,0-7,2x länger als breit, Patella 6,2-6,6x, Hand mit Stiel 2,7-2,8x, Finger ca. 1,7x länger als Hand mit Stiel; Hand auf Medialseite in fast gesamter Länge granuliert, Trichobothrium *ib* in basaler Handhälfte, keine lanzett-förmige Borsten auf laterobasaler Handseite, distal von *ib* nur 1-2 feine dünne Mikroborsten; auf festem Scherenfinger zwischen Trichobothrien *est* und *et* eine Reihe von ca. 7 dünnen, feinen Mikroborsten.

Hadoblothrus aegaeus: Carapax-Vorderrand ohne Epistom, Hinterrand mit 4 Borsten; Pedipalpen: Femur 7,3-8,0x, Patella 6,6-7,0x, Hand mit Stiel 2,15-2,40x, Schere mit Stiel 6,3-7,1x länger als breit, Finger 1,9-2,0x länger als Hand mit Stiel; Hand auf Medialseite in distaler Hälfte granuliert, basolateral eine Reihe von lanzett-förmiger Borsten, Trichobothrium *ib* in distaler Handhälfte, eine Reihe feiner, dünner Mikroborsten etwas distal von *ib*; auf festem Scherenfinger zwischen Trichobothrien *est* und *et* ein längliches Feld von ca. 7-11 lanzettförmigen Borsten.

Allocernes powelli (Kew, 1916)

UNTERSUCHTES EXEMPLAR: MHNG; 1♀; Griechenland, Kykladen, Santorin, Kamari, Höhle "Zoodochos I" oberhalb des Dorfes, ca. 170 m, Kalkfelsen; leg. B. Hauser; 29.IX.2011 (Probe Sa-11/2).

BEMERKUNG: Schawaller (1990) meldete aus einer der beiden Höhlen bei Kamari zwei Jungtiere einer nicht näher bestimmten Chernetiden-Gattung und -Art. Die im Mittelmeer-Gebiet weit verbreitete Art *A. powelli* war von Beron (1985) aus einer Höhle auf der benachbarten Insel Iraklion gemeldet worden. Diese Art scheint in Höhlen Kretas regelmäßig aufzutreten und liegt auch aus einer Höhle der Insel Karpathos vor (Mahnert, 1979).

VERDANKUNG

Mein aufrichtiger Dank gilt den beiden Sammlern, meinen Kollegen Dr. Bernd Hauser und Dr. Pierre Strinati, für ihr Vertrauen, mir diese interessante Aufsammlungen zur Bearbeitung anvertraut zu haben. Ich danke auch einem anonymen Begutachter für die genauen und hilfreichen Kommentare.

LITERATUR

- BEIER, M. 1952. Über die von L. di Caporiacco aus Apulien beschriebenen Höhlen- Pseudo - scorpione. *Memorie di Biogeografia Adriatica* 2: 103-108 (1951).
- BEIER, M. 1963. Ordnung Pseudoscorpionidea (Afterskorpione). *Bestimmungsbücher zur Bodenfauna Europas* 1: i-vii, 1-313.
- BERON, P. 1985. On the cave fauna of the Greek Islands of Santorin and Iraklia, with preliminary description of a new pseudoscorpion. *Grottes Bulgares* 3: 64-71.
- CHAMBERLIN, J. C. 1931. The arachnid order Chelonethida. *Stanford University Publications, Biological Sciences* 7(1): 1-284.
- CAPORIACCO, L. di 1951. Aracnidi cavernicoli Pugliesi. *Memorie di Biogeografia Adriatica* 2: 95-101.
- GABBUTT, P. D. & VACHON, M. 1963. The external morphology and life history of the pseudo-scorpion *Chthonius ischnocheles* (Hermann). *Proceedings of the Zoological Society of London* 140: 75-98.

INZAGHI, S. 1983. *Pseudoblothrus regalini* n. sp. da grotte della provincia di Bergamo (Italia sett.) (Pseudoscorpiones Syarinidae). *Atti della Società italiana di Scienze naturale, Museo civico di Storia naturale Milano* 124(1-2): 38-48.

KEW, H. W. 1916. A synopsis of the false-scorpions of Britain and Ireland; supplement. *Proceedings of the Royal Irish Academy* (series B) 33: 71-85.

MAHNERT, V. 1979. Pseudoskorpone (Arachnida) aus Höhlen Griechenlands, insbesondere Kretas. *Archives des Sciences* 32: 213-233.

MAHNERT, V. 1980. Pseudoskorpone (Arachnida) aus Höhlen Italiens, mit Bemerkungen zur Gattung *Pseudoblothrus*. *Le Grotte d'Italia* (Serie 4) 8: 21-38 (1978-1979).

PICHLER, H., GÜNTHER, D. & KUSSMAUL, S. 1972. Inselbildung und Magmengenese im Santorin-Archipel. *Naturwissenschaften* 59: 188-197.

SCHAWALLER, W. 1984. Die Fauna der Ägäis-Insel Santorin. Teil 5. Arachnida und Crustacea. *Stuttgarter Beiträge zur Naturkunde* (Serie A, Biologie) 371: 1-16.

SCHAWALLER, W. 1990. Zwei neue höhlenbewohnende *Chthonius*-Arten (Arachnida, Pseudoscorpiones) von den Griechischen Inseln Santorin und Chios. *Annales Musei Goulandris* 8: 417-424.

SCHMALFUSS, H., STEIDEL, C. & SCHLEGEL, M. 1981. Die Fauna der Ägäis-Insel Santorin. Teil 1. *Stuttgarter Beiträge zur Naturkunde* (Serie A, Biologie) 347: 1-14.

On linyphiid spiders (Araneae) from Israel

Andrei V. TANASEVITCH

Institute of Ecology and Evolution, Russian Academy of Sciences,
Leninsky Prospect 33, Moscow 119071, Russia. E-mail: tanasevitch@gmail.com

On linyphiid spiders (Araneae) from Israel. - 28 linyphiid species are recorded from Israel, eleven of which are reported as new to the Israeli fauna, and six are described as new to science: *Araeoncus banias* sp. n., *Canariphantes epigynatus* sp. n., *Improphanes breviscapus* sp. n., *Trichoncus rostralis* sp. n., *Troxochrus triangularis* sp. n. and *Typhochrestus meron* sp. n.

Keywords: Arachnida - Linyphiidae - new species - new records.

INTRODUCTION

At present, nearly 20 valid linyphiid species are known from Israel (O. P.-Cambridge, 1872; Pluess *et al.*, 2008; Tanasevitch, 2011), with only two from them, *Alioranus pastoralis* (O. P.-Cambridge, 1872) and *Pelecopsis pavida* (O. P.-Cambridge, 1872), described from that country.

In September 2011, in the course of a brief collecting trip across Israel, a small material has been taken which, together with additional samples provided by several other people, forms the basis of the present contribution. Altogether, this material appears to contain 28 known species, as well as a few new ones. Six of these latter are put on record below.

MATERIAL AND METHODS

This paper deals with linyphiids collected in September 2011 by A. Tanasevitch, T. Piterkina & S. Zonstein, with spider material kept at the Department of Zoology, University of Tel Aviv, Israel, as well as with some material available from several personal collections.

Most samples were mainly taken by sifting leaf litter, as well as by sweeping and hand collecting, whereas material delivered by other persons was mainly obtained by pitfall trapping, being generally in poor condition.

If not mentioned otherwise, the material is deposited in the Department of Zoology & National Collections of Natural History, Tel Aviv University, Israel; some paratypes and non-types are in the Muséum d'histoire naturelle, Geneva, Switzerland, and in the collection of the Zoological Museum of the Moscow State University, Moscow, Russia.

The chaetotaxy of Erigoninae is given in a formula (e.g., 2.2.1.1) which refers to the number of dorsal spines on tibiae I-IV. For Micronetinae, the chaetotaxy is given in a different formula, e.g., Ti I: 2-1-1-2(1), which means that tibia I has two dorsal

spines, one pro-, one retrolateral spine, and two or one ventral spine (the apical spines are disregarded). The sequence of leg segment measurements is as follows: femur + patella + tibia + metatarsus + tarsus. All measurements are given in mm. All scale lines in the figures correspond to 0.1 mm.

The terminology of genitalic structures in Micronetinae follows that of Saaristo & Tanasevitch (1996), for Erigoninae it mainly follows that of Hormiga (2000).

The following abbreviations are used in the text and figures: ARP - anterior radical process; BC - bursa copulatrix; Ca - carina; DO - dorsal outgrowth; DP - dorsal plate; DPS - distal part of scape; DSA - distal suprategular apophysis; E - embolus; ED - embolic division; EP - embolus proper; L - lamella characteristic; MHNG - Muséum d'histoire naturelle, Geneva, Switzerland; M - membrane; MM - median membrane; Mt - metatarsus; P - proscape; PMP - posterior median plate; PO - prolateral outgrowth; R - radix; RA - radical apophysis; RO - retrolateral outgrowth; TAU - Department of Zoology & National Collections of Natural History, Tel Aviv University, Israel; Th - thumb; Ti - tibia; TmI - position of trichobothrium on metatarsus I; X - outgrowth on ARP; Z - outgrowth on DSA; ZMMU - Zoological Museum of the Moscow State University, Moscow, Russia.

RESULTS

Agyneta pseudorurestris Wunderlich, 1980

? *Erigone rurestris* not sensu C. L. Koch, 1836. – O. P.-Cambridge, 1872: 289, possible misidentification.

MATERIAL: 1 ♂; 1 ♂ (MHNG); ISRAEL, 10 km SSW of Beit-Shemesh, Adullam Nature Park, 300-400 m a.s.l., pitfall traps; 10.III.2008; leg. O. Skutetsky. – 1 ♂; Banias Nature Reserve (33°14.8'N 35°41.8'E); 25.V.2010; leg. S. Zonstein. – 1 ♂; Pamat-HaNadiv, 1 km S of Zihron-Ya'aqov (32°33'N 34°57'E), 130 m a.s.l.; 18.XII.2010; leg. S. Zonstein.

PREVIOUS RECORDS: In Israel this species was hitherto known from Beer Sheva (Pluess *et al.*, 2008: 369). It seems quite possible that *Erigone rurestris*, recorded by O. P.-Cambridge (1872) from Jerusalem, the Lebanon and Beirut (sic!), is a misidentified *A. pseudorurestris*.

Alioranus pastoralis (O. P.-Cambridge, 1872)

MATERIAL: 4 ♂, 1 ♀ + 2 ♂ + 1 ♂ + 2 ♂; ISRAEL, environs of Eshkolot (31°23'41.6"N 34°54'11.9"E), pitfall traps; 13.-18.I.2007; leg. I. Shtirberg. – 24 ♂, 1 ♀ (MHNG); Upper Galilee, environs of En Ya'aqov (33°0'27.5"N 35°14'20.0"E), pitfall trap 2; 19.-24.I.2007; leg. I. Shtirberg. – 20 ♂; same, pitfall traps; 26.XI.-1.XII.2006; leg. I. Shtirberg. – 1 ♂; same, pitfall trap 11; 14.-19.I.2007; leg. I. Shtirberg. – 2 ♂; Upper Galilee, Mt Meron, Meron Field Station (33°0'3.12"N 35°25'41.52"E); 2.IV.2011; T. Levanony. – 5 ♂ + 1 ♂ + 1 ♂; same; 5.-12.IV.2007; leg. T. Levanony. – 5 ♂; Upper Galilee, Mt Meron, Ziv'on; 2.IV.2011; T. Levanony. – 1 ♀; Adullam Nature Park; 20.III.2008; leg. O. Skutetsky. – 1 ♂ + 1 ♂; ca 10 km SW of Bait She'an, Gilboa, pitfall trap 5; 23.IV.2010; leg. C. Drees & L. Friedman. – 1 ♂; 8 km SE of Beit-Shemesh, environs of Matta (31°42'47.8"N 35°3'56.0"E), pitfall trap 13C; 13.-18.I.2007; leg. I. Shtirberg. – 1 ♂, 1 ♀; ca 10 km SSW of Beit-Shemesh, Adullam Nature Park, pitfall traps; III.2003; U. Columbus & T. Levanony. – 1 ♂; south shore of Lake Kinneret near Deganya; 26.IV.2010; leg. C. Drees & L. Friedman.

PREVIOUS RECORDS: In Israel this species was hitherto known from Mt Tabor (type locality) (O. P.-Cambridge, 1872) and Beer Sheva (Pluess *et al.*, 2008).

Araeoncus banias sp. n.

Figs 1-7

HOLOTYPE: ♂; ISRAEL, Upper Galilee, Banias Nature Reserve, 370 m a.s.l., bank of Guveta stream (33.24839°N 35.69193°E), among stones and leaf litter (*Quercus calliprinos* and *Laurus nobilis*); 15.IX.2011; leg. A. Tanasevitch, T. Piterkina & S. Zonstein.

PARATYPES: 1 ♀; 1 ♀ (MHNG); from same locality, collected together with the holotype.

ETYMOLOGY: The specific epithet, a noun in apposition, is taken from the name of type locality.

DIAGNOSIS: The new species is characterized by the presence of a thick and long outgrowth on the anterior radical process in the embolic division on the male palp. The female is diagnosed by the presence of a cotter-shaped flat elevation in the median furrow area of the epigyne, as well as by the triangular shape of its dorsal plate.

DESCRIPTION: Male (holotype). Total length 1.88. Carapace dark brown, modified as shown in Figs 1-2, 0.93 long, 0.58 wide. Chelicerae 0.30 long, unmodified. Legs brown. Leg I 2.27 long (0.63+0.20+0.53+0.53+0.38), IV 2.44 long (0.73+0.20+0.63+0.55+0.33). Chaetotaxy: 2.2.1.1, spines on tibiae I-II very small and poor visible, on III-IV about 1-1.5 diameter of segment. TmI 0.40. Metatarsus IV without trichobothrium. Palp as in Figs 3-4: palpal tibia narrow, elongated, with a deep hollow apically. Paracymbium small, simple, hook-shaped. Distal suprategular apophysis narrow, long, V-shaped and curved, regularly tapering towards a pointed tip. Anterior radical process large, semi-lunar, with a thick and long outgrowth rising from its middle part ("X" in Figs 3-4). Embolus long, semi-circular, with a membranous inner edge. Abdomen 0.95 long, 0.70 wide, grey.

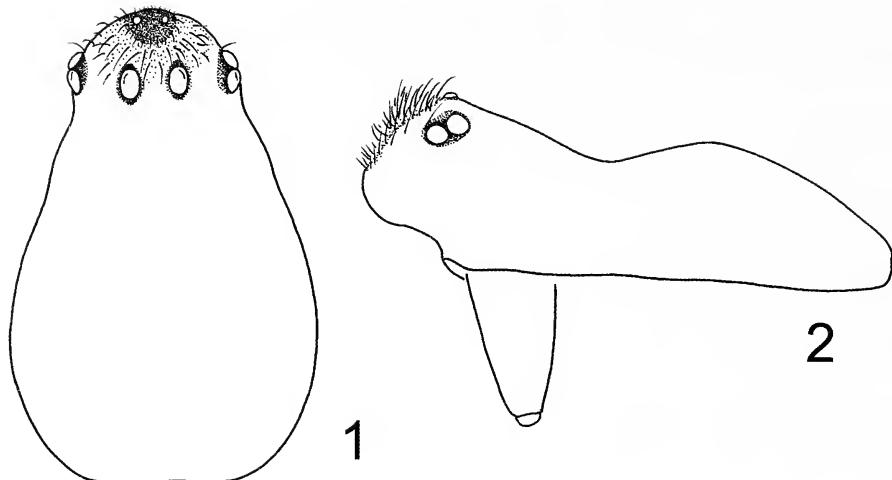
Female. Total length 1.63. Carapace 0.73 long, 0.50 wide. Chelicerae 0.35 long. Leg I 2.01 long (0.55+0.18+0.48+0.45+0.35), IV 2.06 long (0.60+0.18+0.53+0.45+0.30). Spines on tibiae about 1-1.5 diameter of segment. TmI 0.44. Abdomen 1.03 long, 0.70 wide. Epigyne and vulva as in Figs 5-7: each part of a bisected ventral plate with a cotter-shaped flat elevation in median fissure area, dorsal plate triangular.

TAXONOMIC REMARKS: The new species is very similar to the Eastern Ancient Mediterranean *A. caucasicus* Tanasevitch, 1987, but differs well by the shape of the male carapace which resembles that of *A. altissimus* Simon, 1884a, by the presence of a thick and long outgrowth on the anterior radical process in the male palp, as well as by the presence of a cotter-shaped flat elevation in the median fissure area and of the triangular posterior dorsal plate in the female (Fig. 7 cf. Fig. 8).

DISTRIBUTION: Known from the type locality only.

Brachycerasphora femoralis (O. P.-Cambridge, 1872)

MATERIAL: 1 ♀ + 1 ♂; ISRAEL, ca 10 km SSW of Beit-Shemesh, Adullam Nature Park; 20.V.2007; leg. O. Skutetsky. – 1 ♂, 4 ♀; same; 10.II.2008; leg. O. Skutetsky. – 1 ♂; same; 15.II.2003; leg. U. Columbus & T. Levanony. – 12 ♂, 4 ♀ (MHNG); same; 15.IV.2003; U. Columbus & T. Levanony. – 5 ♂, 1 ♀ (ZMMU) + 1 ♂ + 2 ♂ + 1 ♂ + 9 ♂, 1 ♀ + 4 ♂ + 3 ♂ + 10 ♂, 1 ♀; 8 km SE of Beit-Shemesh, environs of Matta (31°42'47.8"N 35°3'56.0"E), pitfall trap 7A; 13.-18.I.2007; leg. I. Shtirberg. – 1 ♂; 6 km S of Ahusam, Pura (31°29'49"N 34°46'50"E); 24.II.2011; leg. C. Drees & L. Friedman. – 3 ♂; environs of Eshkolot (31°23'41.5"N 34°54'11.9"E), pitfall trap 1B; 3.-8.II.2007; leg. I. Shtirberg. – 1 ♂; environs of Shoham; 25.II.2011; leg. C. Drees & L. Friedman. – 5 ♂; Hatzeva, trap 3; 3.II.2011; leg.



FIGS 1-2

Araeoncus banias sp. n., ♂ holotype. (1) Carapace, dorsal view. (2) Carapace and chelicera, lateral view.

C. Drees & L. Friedman. – 1 ♂; Upper Galilee, environs of En Ya'aqov (33°0'27.5"N 35°14'20.0"E), pitfall traps; 14.-19.I.2007; leg. I. Shtirberg.

PREVIOUS RECORDS: This species was hitherto only known from the female holotype from the “plains of Jordan” (type locality) (O. P.-Cambridge, 1872). The male of this species is still undescribed and will be presented in the near future. This species is here newly recorded for the fauna of Israel.

Canariphantes epigynatus sp. n.

Figs 9-16

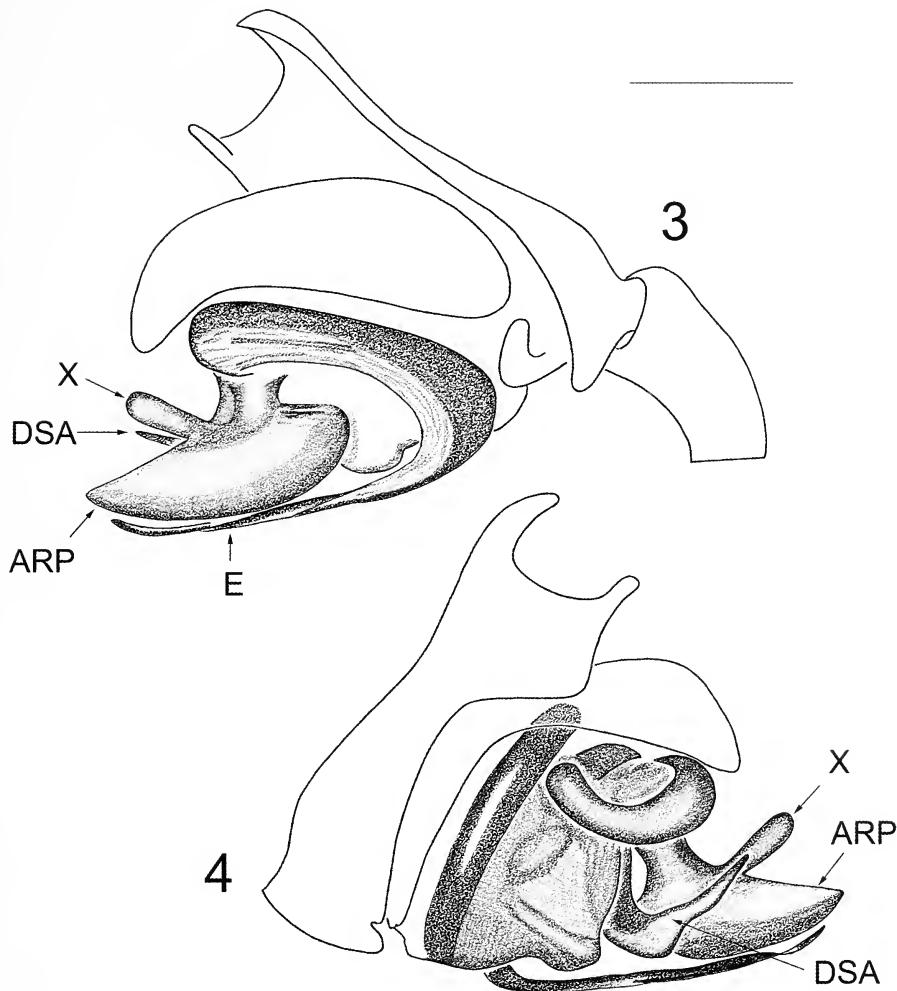
HOLOTYPE: ♂; ISRAEL, ca 10 km SW of Bait She'an, Gilboa, pitfall traps; 23.IV.2010; leg. C. Drees & L. Friedman.

PARATYPES: 4 ♂, 1 ♀; 3 ♂ (MHNG), from same locality, collected together with the holotype.

ETYMOLOGY: The species name, a latinized adjective, refers to the peculiar shape of the epigyne.

DIAGNOSIS: The new species is characterized by the paracymbium carrying a sharp tooth and by the shape of the lamella characteristic in the male, as well as by the peculiar conformation of the epigyne in the female. In there the scapus is strongly modified and consists mainly of the proscapus; the stretcher and the lateral lobes are both reduced, while each bursa copulatrix flanks the apex of the scapus.

DESCRIPTION: Male (holotype). Total length 1.90. Carapace pale brown, unmodified, 0.83 long, 0.56 wide. Chelicerae 0.33 long, unmodified. Legs pale brown. Leg I 3.78 long (1.00+0.25+0.98+0.95+0.60), IV 3.44 long (1.00+0.23+0.93+1.00+0.58). Chaetotaxy: Ti I: 2-1-1-0, II: 2-0-1-0, III-IV: 2-0-0-0; Mt I-III: 1-0-0-0, IV: 0-0-0-0. TmI 0.16. Metatarsus IV without trichobothrium. Palp as in Figs 9-14: cymbium without posterodorsal outgrowth. Paracymbium with a wide and well sclerotized

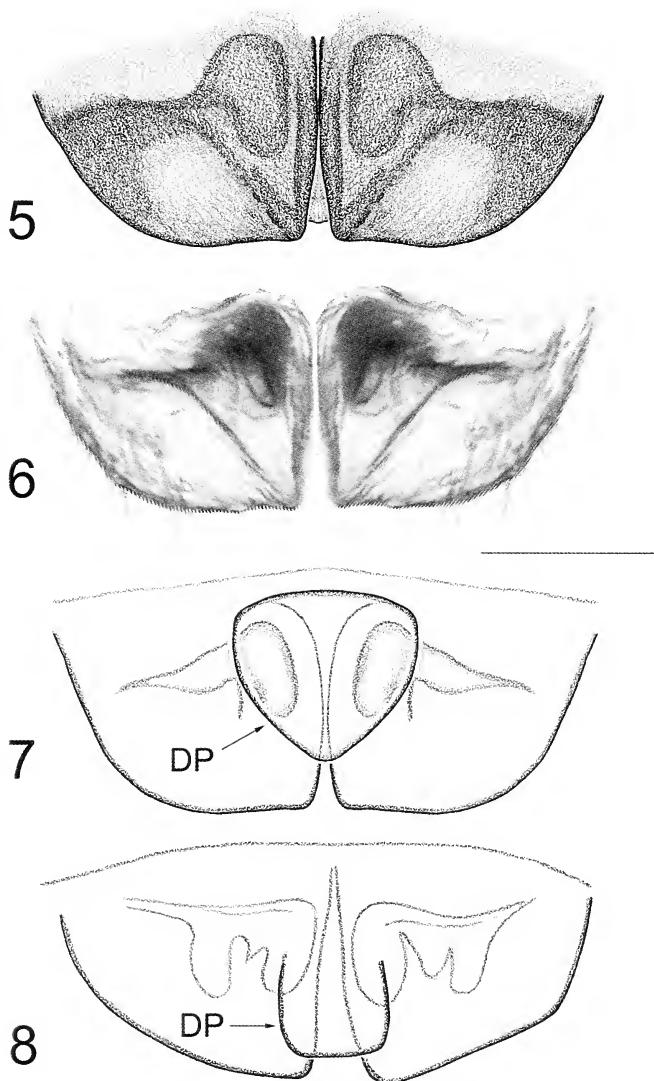


FIGS 3-4

Araeoncus banias sp. n., ♂ holotype. (3-4) Left palp, retrolateral and prolateral view, respectively.

proximal part, distal part small and almost transparent; lower edge of proximal part of paracymbium with a sharp tooth. Lamella characteristic narrow, slightly curved, hook-shaped apically. Embolus relatively large, its thumb well developed. Abdomen 1.13 long, 0.65 wide, grey.

Female. Single female in bad condition: body deformed, legs mostly lost. Epigyne as in Figs 15-16: strongly sclerotized, scapus consisting only of a proscapus, lateral lobes and stretcher reduced. Proscapus straight, parallel-sided; bursae copulatrix situated at apex of proscrape.

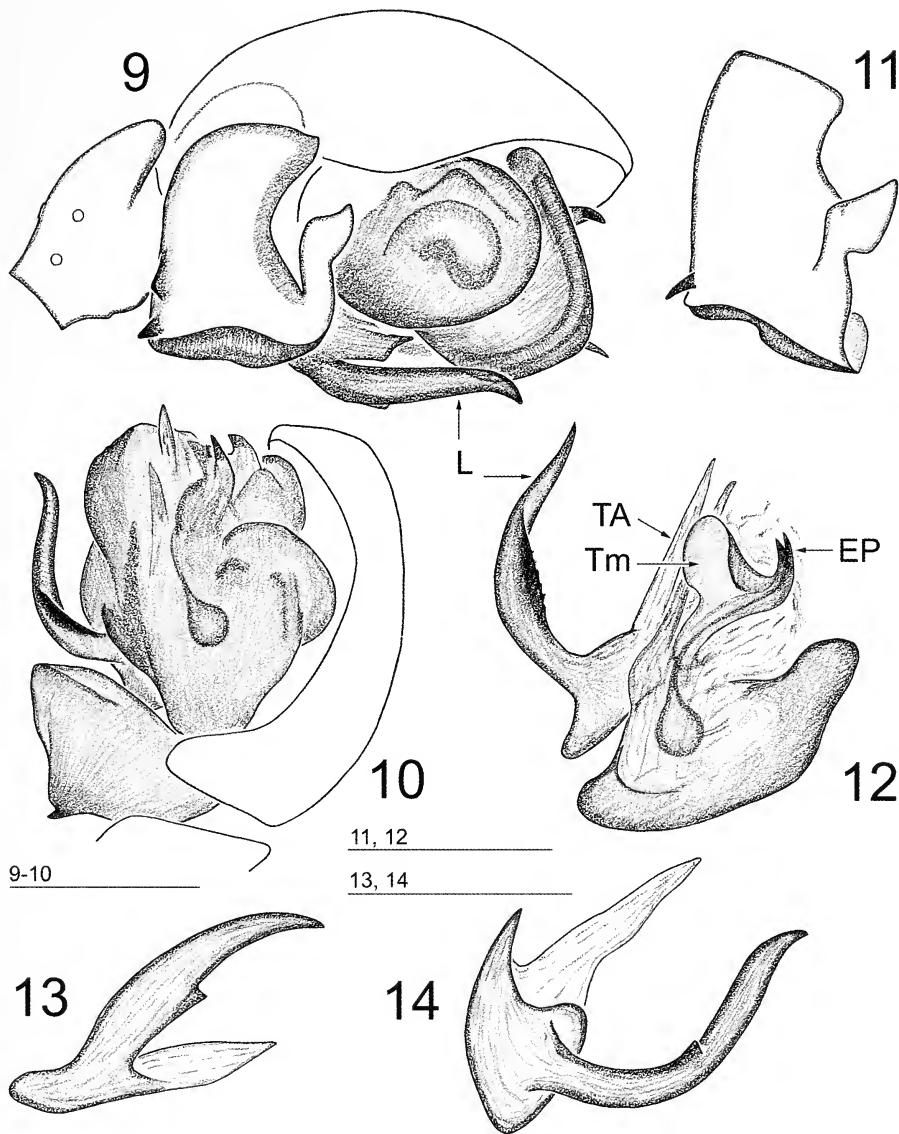


FIGS 5-8

Araeoncus banias sp. n., ♀ paratype (5-7) and *A. caucasicus* Tanasevitch, 1987, specimen from Kazakhstan (8). (5-6) Epigyne, ventral view. (7-8) Vulva, dorsal view.

TAXONOMIC REMARKS: According to the male palp conformation, *C. epigynatus* sp. n. clearly belongs to the Mediterranean *Canariphantes* Wunderlich, 1992, but the structure of the epigyne is unusual and strongly resembles that of *Fistulaphantes canalis* Tanasevitch & Saaristo, 2006, a species known from Nepal.

DISTRIBUTION: Known from the type locality only.

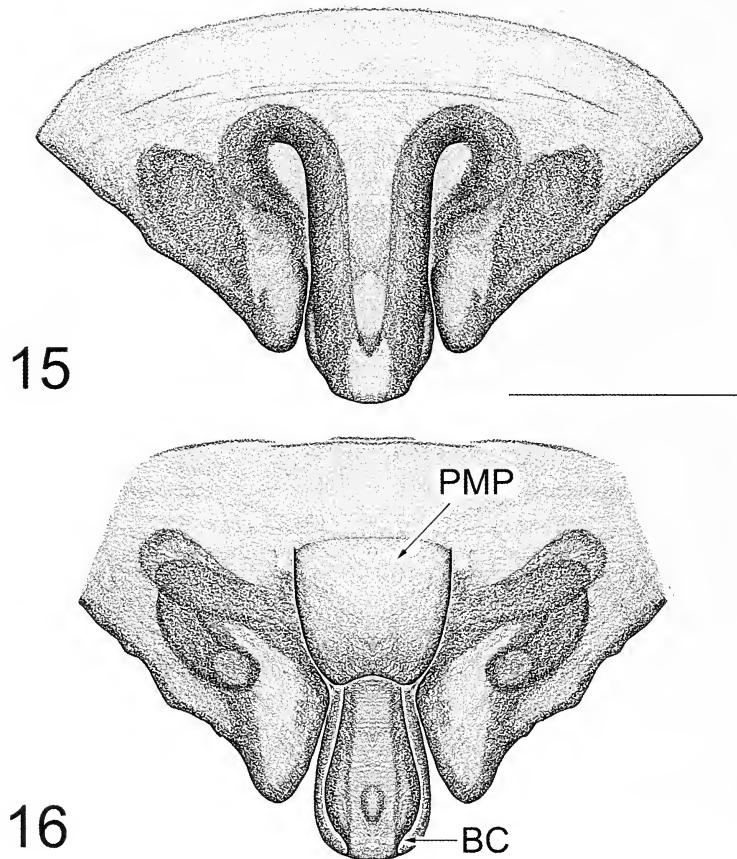


FIGS 9-14

Canariphantes epigynatus sp. n., ♂ paratype. (9-10) Right palp, retrolateral and ventral view, respectively. (11) Cymbium, lateral view. (12) Embolic division, ventral view. (13-14) Lamella characteristic, different aspects.

Canariphantes nanus (Kulczyński, 1898)

MATERIAL: 8 ♂, 3 ♀ (ZMMU); ISRAEL, Upper Galilee, SW macroslope of Mt Hermon (33.2951°N 35.76143°E), 1530 m a.s.l., stony slope near top, sparse forest of *Quercus ithaburensis*, herbless, *Crataegus*; 15.IX.2011; leg. A. Tanasevitch, T. Piterkina & S. Žonstein. – 2 ♂, 4 ♀ (MHNG); Upper Galilee, Mt Adir (33.03215°N 35.36626°E), 787 m a.s.l., *Quercus ithaburensis*.



FIGS 15-16

Canariphantes epigynatus sp. n., ♀ paratype. (15-16) Epigyne, ventral and dorsal view, respectively.

rensis and *Q. calliprinos* forest with *Cistus creticus*, herbless, leaf litter; 13.IX.2011; leg. A. Tanasevitch, T. Piterkina & S. Zonstein. – 1 ♂; Upper Galilee, N slope of Mt Meron (32.99937° N 35.39538° E), 1080 m a.s.l., *Quercus calliprinos* and *Q. bossieri* forest, *Arbutus andrachne*, *Cercis ciliquastrum*, *Acer obtusifolium*, *Pistacia palestinensis*, *Pyrus syriaca*, *Spartium unceum*, *Crataegus aronia*, *Sarsaparilla*, herbless, leaf litter; 13.IX.2011; leg. A. Tanasevitch, T. Piterkina & S. Zonstein. – 1 ♂; Mt Meron ($32^{\circ}59'53.86''$ N $35^{\circ}25'37.23''$ E), forest, pitfall traps 7-(7); 12.-19.XI.2007; leg. T. Levanony. – 1 ♀; Upper Galilee, Banias Nature Reserve, 370 m a.s.l., bank of Guveta stream (33.24839° N 35.69193° E), among stones and leaf litter (*Quercus calliprinos* and *Laurus nobilis*); 15.IX.2011; leg. A. Tanasevitch, T. Piterkina & S. Zonstein. – 1 ♂; Upper Galilee, environs of En Ya'aqov ($33^{\circ}0'27.5''$ N $35^{\circ}14'20.0''$ E), pitfall traps; 14.-19.I.2007; leg. I. Shtirberg. – 1 ♂; same, pitfall trap 11; 14.-19.IV.2007; leg. I. Shtirberg. – 1 ♂; same, pitfall trap 4B; 14.-19.IV.2007; leg. I. Shtirberg. – 3 ♂; ca 10 km SSW of Beit-Shemesh, Adullam Nature Park; 15.XI.2003; leg. U. Columbus & T. Levanony. – 4 ♂, 1 ♀ environs of Matta ($31^{\circ}42'47.8''$ N $35^{\circ}3'56.0''$ E); 13-18.IV.2007; leg. I. Shtirberg.

REMARKS: This species is here newly recorded for the fauna of Israel.

***Dactylopiesthes digiticeps* (Simon, 1881)**

MATERIAL: 1 ♂; ISRAEL, Hatzeva, pitfall trap 3; 3.II.2011; leg. C. Drees & L. Friedman. – 28 ♂, 5 ♀; 2 km W of Yeruham, bank of Yeruham Lake ($30^{\circ}59.3'N$ $34^{\circ}54'E$), *Tamarix* spp. and *Arundo donax*, 450 m; 7.III.2011; leg. C. Drees & L. Friedman. – 10 ♂, 3 ♀; same; 3.VIII.2010; leg. C. Drees & L. Friedman. – 8 ♂, 8 ♀; same; 20.VII.2010; leg. C. Drees & L. Friedman. – 4 ♂, 5 ♀; same; 14.III.2011; leg. C. Drees & L. Friedman. – 1 ♂; Central Negev Desert, Sede Boqer ($30^{\circ}52'3.1''N$ $34^{\circ}46'17.8''E$), pitfall traps; 13.-18.I.2007; leg. I. Shtirberg. – 1 ♂; Qidron; 16.III.2011; leg. C. Drees & L. Friedman. – 20 ♂, 5 ♀; south shore of Lake Kinneret near Deganya; 26.IV.2010; leg. C. Drees & L. Friedman. – 1 ♂; same; 30.I.2011; leg. C. Drees & L. Friedman.

PREVIOUS RECORDS: In Israel this species was hitherto known from Galilee, Ginosar (TANASEVITCH, 2011).

***Diplocephalus graecus* (O. P.-Cambridge, 1872)**

MATERIAL: 3 ♂; ISRAEL, ca 10 km SSW of Beit-Shemesh, Adullam Nature Park; 20.III.2008; leg. O. Skutetsky.

REMARKS: This species is here newly recorded for the fauna of Israel.

***Erigone dentipalpis* (Wider, 1834)**

MATERIAL: 2 ♂, 1 ♀; ISRAEL, Yeruham; 20.VII.2011; leg. C. Drees & L. Friedman. – 5 ♀; south shore of Lake Kinneret near Deganya; 26.IV.2010; leg. C. Drees & L. Friedman. – 1 ♂; Ha Besor; 15.XI.2010; leg. C. Drees & L. Friedman.

PREVIOUS RECORDS: In Isarael this species was hitherto known from Beer Sheva (Pluess *et al.*, 2008) and from Maize, Newe Yaar (TANASEVITCH, 2011).

***Frontinellina frutetorum* (C. L. Koch, 1834)**

MATERIAL: 1 ♀; ISRAEL, Upper Galilee, Nahal Kzif Valley, env. of Hila ($33^{\circ}04'10.4''N$ $35^{\circ}23'33.1''E$), *Quercus calliprinos* herbless forest with *Laurus nobilis*, 460 m a.s.l.; 16.09.2011; leg. A. Tanasevitch, T. Piterkina & S. Zonstein. – 1 ♂, 1 ♀; Banias National Reserve ($33^{\circ}14'4.8''N$ $35^{\circ}41.8''E$); 25.V.2010; leg. S. Zonstein. – 3 ♂, 1 ♀; Tel Aviv, Ramat Aviv; 4.VI.2006; leg. L. Friedman. – 1 ♀; Jerusalem, Hebrew University campus, Giv'at Ram; 10.VII.2011; leg. S. Zonstein.

PREVIOUS RECORDS: In the Near East this species was hitherto known from Hebron and Jericho, the Palestinian territory (O. P.-Cambridge, 1872, as *Linyphia frutetorum*).

***Gonatium occidentale* Simon, 1918**

MATERIAL: 2 ♂; ISRAEL, Upper Galilee, Mt Meron, Ba'al-Shem-Tov forest ($32^{\circ}59'2.41''N$ $35^{\circ}28'23.36''E$), pitfall traps; 13.-20.XI.2007; leg. T. Levanony.

REMARKS: This species is here newly recorded for the fauna of Israel. It is also known from France, Spain, Algeria and Morocco (Platnick, 2012).

***Gnathonarium dentatum* (Wider, 1834)**

MATERIAL: 5 ♂, 6 ♀; ISRAEL, south shore of Lake Kinneret near Deganya; 26.IV.2010; leg. C. Drees & L. Friedman; – 3 ♂; same; 30.I.2011; leg. C. Drees & L. Friedman. – 2 ♀; same; 12.II.2010; leg. C. Drees & L. Friedman. – 1 ♀; 6 km S of Alhusam, Pura ($31^{\circ}29'49''N$ $34^{\circ}46'50''E$); 24.II.2011; leg. C. Drees & L. Friedman. – 7 ♂, 6 ♀; 2 km W of Yeruham, bank of Lake Yeruham ($30^{\circ}59.3'N$ $34^{\circ}54'E$), *Tamarix* spp. and *Arundo donax*, 450 m a.s.l., pitfall

traps; 14.III.2011; leg. C. Drees & L. Friedman. – 3 ♂; same; 3.VIII.2010; leg. C. Drees & L. Friedman. – 12 ♂ & 17 ♀; same; 7.III.2011; leg. C. Drees & L. Friedman. – 2 ♂, 2 ♀; Upper Galilee, env. of Lake Hula; 21.II.2011; leg. C. Drees & L. Friedman. – 10 ♂, 10 ♀; same; 30.I.2011; leg. C. Drees & L. Friedman.

REMARKS: On the basis of a particular abdominal colour pattern alone, O. P.-Cambridge (1872) described a subspecies, *Erigone dentata orientalis* O. P.-Cambridge, 1872, from Elisha's Well, Jericho, the Palestinian territory. Specimens at my disposal show a standard, ordinary body coloration.

***Improphanes breviscapus* sp. n.**

Figs 17-23

HOLOTYPE: ♂; ISRAEL, ca 10 km SSW of Beit-Shemesh, Adullam Nature Park, 300-400 m a.s.l., pitfall traps; 10.III.2008; leg. O. Skutetsky.

PARATYPES: 2 ♂, 4 ♀; ca 10 km SSW of Beit-Shemesh, Adullam Nature Park; VI-II.2003; T. Levanony. – 4 ♂, 2 ♀ (MHNG); ca 10 km SW of Bait She'an, Gilboa, pitfall trap 5; 23.IV.2010; leg. C. Drees & L. Friedman. – 1 ♂; ca 8 km SE of Beit-Shemesh, env. of Matta ($31^{\circ}42'47.8''N$ $35^{\circ}3'56.0''E$), pitfall trap 13C; 13.-18.I.2007; leg. I. Shtirberg. – 1 ♂; env. of En Ya'aqov ($33^{\circ}0'27.5''N$ $35^{\circ}14'20.0''E$), pitfall traps; 26.XI-1.XII.2006; leg. I. Shtirberg. – 1 ♀ (MHNG); 15 km S Haifa, Nahal Oren Canyon, 7-8.IV.1995, leg. T. Pavliček. – 1 ♂ (ZMMU); Pamat-HaNadiv, 1 km S of Zihron-Ya'aqov ($32^{\circ}33'N$ $34^{\circ}57'E$), 130 m a.s.l.; 18.XII.2010; leg. S. Zonstein.

ETYMOLOGY: The specific name, a noun in apposition, refers to the shape of the proscape.

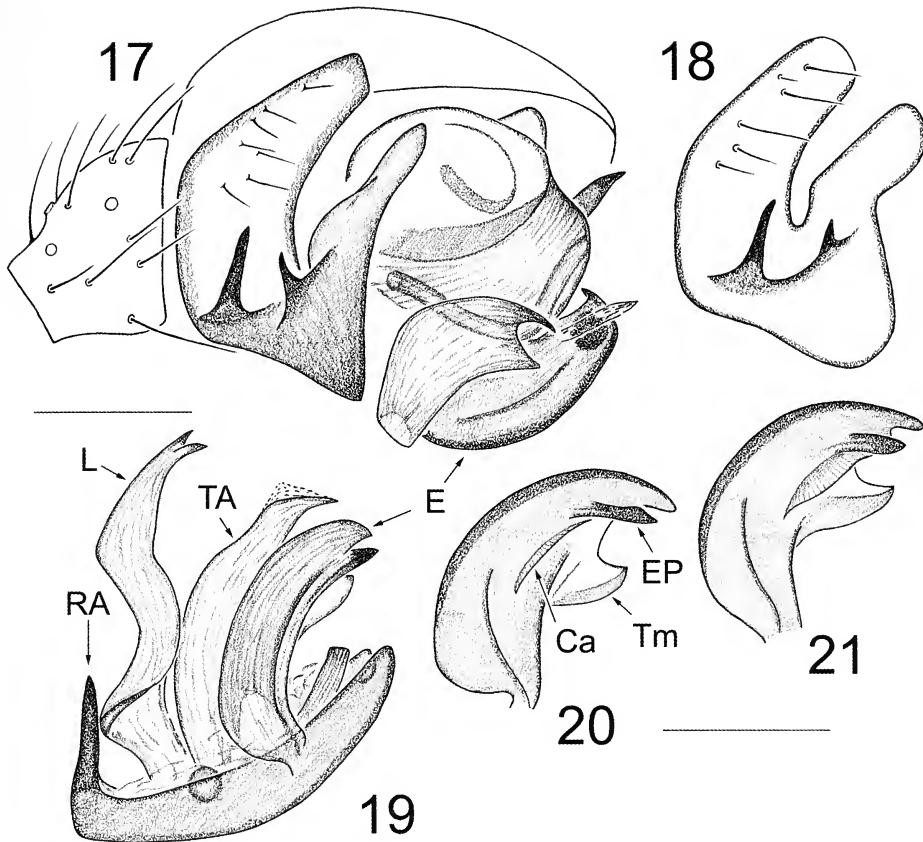
DIAGNOSIS: The species is characterized by the armed paracymbium and the shape of the lamella characteristica in the male, as well as by the circular proscape and the reduced stretcher in the female.

DESCRIPTION: Male (holotype). Total length 2.00. Carapace unmodified, 0.88 long, 0.75 wide, yellow, with a narrow dark margin. Chelicerae 0.40 long. Legs yellow. Leg I 3.93 long ($1.00+0.25+1.05+0.95+0.68$), leg IV 4.11 long ($1.03+0.25+1.03+1.05+0.75$). Chaetotaxy: Ti I: 2-1-1-0, II: 2-0-1-0, III-IV: 2-0-0-0; Mt I-III: 1-0-0-0, IV: 0-0-0-0. TmI 0.17. Palp as in Figs 17-21: cymbium without posterodorsal outgrowth. Paracymbium U-shaped, with two well-sclerotized teeth of different size. Radix with a spear-shaped outgrowth at base of lamella characteristica. Lamella characteristica relatively short and wide, with a hollow apically. Terminal apophysis unipartite, long and narrow. Embolus with a thick embolus proper and a small thumb, carina narrow. Fickert's gland spherical. Abdomen 1.00 long, 0.68 wide, pale grey.

Female (from Adullam). Total length 2.15. Carapace unmodified, 0.83 long, 0.68 wide. Chelicerae 0.33 long. Leg I 3.88 long ($1.05+0.30+1.00+0.90+0.63$), leg IV 3.78 long ($1.05+0.25+0.98+0.90+0.60$). TmI 0.18. Epigyne as in Figs 22-23: proscape circle-shaped, distal part of scape very wide, stretcher reduced, a pit situated at the end of distal part of scape.

TAXONOMIC REMARKS: This species is similar to the Anatolian *I. turok* Tanasevitch, 2011 (known from the male only), in particular in the presence of a spear-shaped outgrowth on the radix near the base of the lamella characteristica. The new species differs clearly from *I. turok* by the peculiar shape of the lamella characteristica and the larger proximal teeth on the paracymbium.

DISTRIBUTION: Known from Israel only.



FIGS 17-21

Improphanes breviscapus sp. n., ♂ paratype from Adullam. (17) Right palp, retrolateral view. (18) Cymbium, lateral view. (19) Embolic division, ventral view. (20-21) Embolus, different aspects.

Linyphia mimonti Simon, 1884b

MATERIAL: 1 ♂; ISRAEL, near Haifa, Mt Carmel, Nahal Oren, forest; 3. & 6.III.2003; leg. S. Zonstein.

PREVIOUS RECORDS: This species is here newly recorded for the fauna of Israel. It is also known from Italy, Greece and Lebanon (Platnick, 2012).

Mecopisthes peusi Wunderlich, 1972

MATERIAL: 2 ♂; ISRAEL, 10 km SSW of Beit-Shemesh, Adullam Nature Park, 300-400 m a.s.l., pitfall traps; 10.III.2008; leg. O. Skutetsky. – 20 ♂, 2 ♀; 5 ♂, 2 ♀ (MHNG); Mt Tavor; 21.II.2011; leg. C. Drees & L. Friedman. – 1 ♂ + 1 ♂; ca 8 km SE of Beit-Shemesh, environs of Matta ($31^{\circ}42'47.8''N$ $35^{\circ}3'56.0''E$), pitfall trap 9D; 3.-8.II.2007; leg. I. Shtirberg.

REMARKS: This species is here newly recorded for the fauna of Israel.

***Megalephyphantes kuhitangensis* (Tanasevitch, 1989)**

MATERIAL: 1 ♀; ISRAEL, Central Negev, 1 km W of Sede Boqer ($30^{\circ}51'N$ $34^{\circ}46'E$), 500 m a.s.l.; 3.I.2011; leg. S. Zonstein.

REMARKS: The female fits Central Asian *M. kuhitangensis* by all parameters, except for a hollow on the posterior median plate: the hollow in the Israeli specimen is slightly deeper than in its Asian conspecifics. This species is here newly recorded for the fauna of Israel.

***Mermessus fradeorum* (Berland, 1932)**

MATERIAL: 13 ♂, 1 ♀; ISRAEL, Yeruham, 3.VIII.2010, leg. C. Drees & L. Friedman. 1 ♂ (ZMMU); Ha Besor; 15.XI.2010; leg. C. Drees & L. Friedman. – 1 ♂ (MHNG); En Avedat; 26.VII.2010; leg. C. Drees & L. Friedman.

REMARKS: This species is here newly recorded for the fauna of Israel.

***Microctenonyx subitaneus* (O. P.-Cambridge, 1875b)**

MATERIAL: 6 ♂; ISRAEL, Tel-Aviv; 17.-22.X.2006; leg. M. Vonshak.

PREVIOUS RECORDS: In Israel this species was hitherto known from Galilee, Ohalo (Tanasevitch, 2011).

***Pelecopsis elongata* (Wider, 1834)**

MATERIAL: 1 ♂; ISRAEL, 8 km SE of Beit-Shemesh, env. of Matta ($31^{\circ}42'47.8''N$ $35^{\circ}3'56.0''E$), pitfall trap 7A; 13.-18.I.2007; leg. I. Shtirberg. – 5 ♂, 1 ♀; same, pitfall trap 1B; 25.-30.X.2006; leg. I. Shtirberg. – 1 ♂; same, pitfall trap 15B; 4.-9.XI.2006; leg. I. Shtirberg. – 1 ♂, 3 ♀; Adullam; 15.XI.2003; U. Columbus & T. Levanony. – 3 ♂, 1 ♀; ca 10 km SW of Bait She'an, Gilboa, pitfall trap 7; 30.I.2011; leg. C. Drees & L. Friedman. – 1 ♂; Upper Galilee, Nahal Ksif; 22.II.2011; leg. C. Drees & L. Friedman. – 1 ♂, 2 ♀; Adullam; 15.XI.2003; U. Columbus & T. Levanony.

REMARKS: This species is here newly recorded for the fauna of Israel.

***Pelecopsis inedita* (O. P.-Cambridge, 1875a)**

MATERIAL: 1 ♂; 1 ♂, 1 ♀ (MHNG); ISRAEL, Adullam; 15.XI.2003; U. Columbus & T. Levanony.

PREVIOUS RECORDS: In Israel this species was hitherto known from Beer Sheva (Pluess *et al.*, 2008).

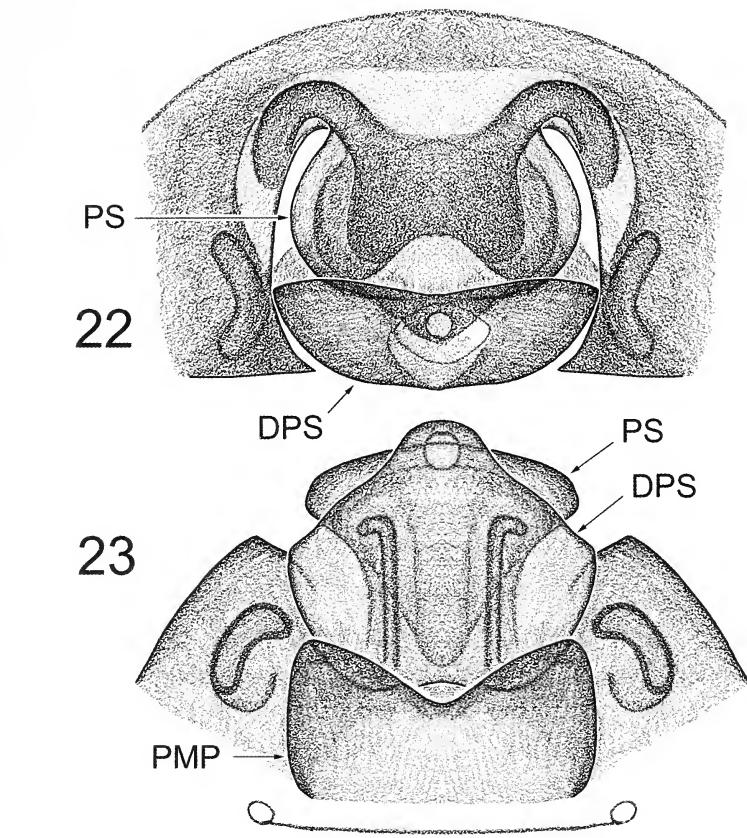
***Prinerigone vagans* (Audouin, 1826)**

MATERIAL: 5 ♂; ISRAEL, Yeruham; 20.VII.2011; leg. C. Drees & L. Friedman. – 2 ♂; south shore of Lake Kinneret near Deganya; 26.IV.2010; leg. C. Drees & L. Friedman.

PREVIOUS RECORDS: In Israel this species was hitherto known from Jezreel-Nazareth Rd. (O. P.-Cambridge, 1872, as *Erigone spinosa* O. P.-Cambridge, 1872).

***Styloctetor romanus* (O. P.-Cambridge, 1872)**

MATERIAL: 1 ♂; ISRAEL, Upper Galilee, Mt Meron, Ba'al-Shem-Tov forest ($32^{\circ}58'56.89''N$ $35^{\circ}28'6.99''E$), pitfall trap 22; 19.-26.II.2007; leg. T. Levanony. – 1 ♂ (MHNG); Mt Hermon, 1700 m a.s.l.; 12.V.2010; C. Dress & L. Friedman. – 2 ♂ (MHNG); env. of En Ya'aqov ($33^{\circ}0'27.5''N$ $35^{\circ}14'20.0''E$), pitfall trap 18; 4.-9.II.2007; leg. I. Shtirberg. – 1 ♂; 8 km SE of Beit-Shemesh, env. of Matta ($31^{\circ}42'47.8''N$ $35^{\circ}3'56.0''E$), pitfall trap 9D; 3.-8.II.2007; leg. I. Shtirberg. – 10 ♂ (ZMMU); same; 13.-18.I.2007; leg. I. Shtirberg.



FIGS 22-23

Improphanes breviscapus sp. n., ♀ paratype from Adullam. (22-23) Epigyne, ventral and dorsal view, respectively.

PREVIOUS RECORDS: In Israel this species was hitherto known from Jerusalem (O. P.-Cambridge, 1872, as *Erigone incauta* O. P.-Cambridge, 1872).

Tenuiphantes tenuis (Blackwall, 1852)

MATERIAL: 5 ♂, 6 ♀; ISRAEL, Upper Galilee, Banias, 370 m a.s.l., bank of Guveta stream (33.24839°N 35.69193°E), among stones and leaf litter (*Quercus calliprinos* and *Laurus nobilis*); 15.IX.2011; leg. A. Tanasevitch, T. Piterkina & S. Zonstein. – 1 ♀; Mt Meron, above Field Station (33°0'41.54"N 35°22'47.44"E), pitfall trap 29-(7); 16.-23.II.2007; leg. T. Levanony. – 1 ♂; Upper Galilee, Nahal Kzif Valley, env. of Hila (33.04104°N 35.23331°E), 460 m a.s.l., *Quercus calliprinos* herbless forest with *Laurus nobilis*; 16.09.2011; leg. A. Tanasevitch, T. Piterkina & S. Zonstein.

REMARKS: This species is here newly recorded for the fauna of Israel.

Trichoncoides piscator (Simon, 1884a)

MATERIAL: 4 ♂, 1 ♀; ISRAEL, 10 km SSW of Beit-Shemesh, Adullam Nature Park, 300-400 m a.s.l., pitfall traps; 10.III.2008; leg. O. Skutetsky.

PREVIOUS RECORDS: In Israel this species was hitherto known from Be'er Sheva (Pluess *et al.*, 2008)

***Trichoncus rostralis* sp. n.**

Figs 24-33

HOLOTYPE: ♂; ISRAEL, Upper Galilee, Mt Meron, Meron Field Station junction ($33^{\circ}1'10.62''N$ $35^{\circ}23'12.17''E$), pitfall traps; 17.-24.II.2007; leg. T. Levanony.

PARATYPES: 4 ♂, 1 ♀; 1 ♂ (MHNG); from same locality, collected together with the holotype. – 1 ♀ (MHNG); from same locality, pitfall traps 24-(8); 10-17.V.2007; leg. T. Levanony. – 1 ♀ (MHNG); Mt Meron; 2.IV.2011; leg. T. Levanony. – 1 ♀ (ZMMU); Mt Meron, above Field Station ($35^{\circ}22'42.92''N$ $33^{\circ}0'41.64''E$); 10-17.V.2007; leg. T. Levanony. – 1 ♂ (MHNG); Ziv'on ($33^{\circ}01'N$ $35^{\circ}25'E$), 712 m a.s.l., old-growth woodland; 3.VI.2005; leg. A. Timm & T. Assmann.

ETYMOLOGY: The specific name, an adjective, is derived from the Latin “*rostrum*”, meaning “bird beak”, referring to the shape of the epigynal process.

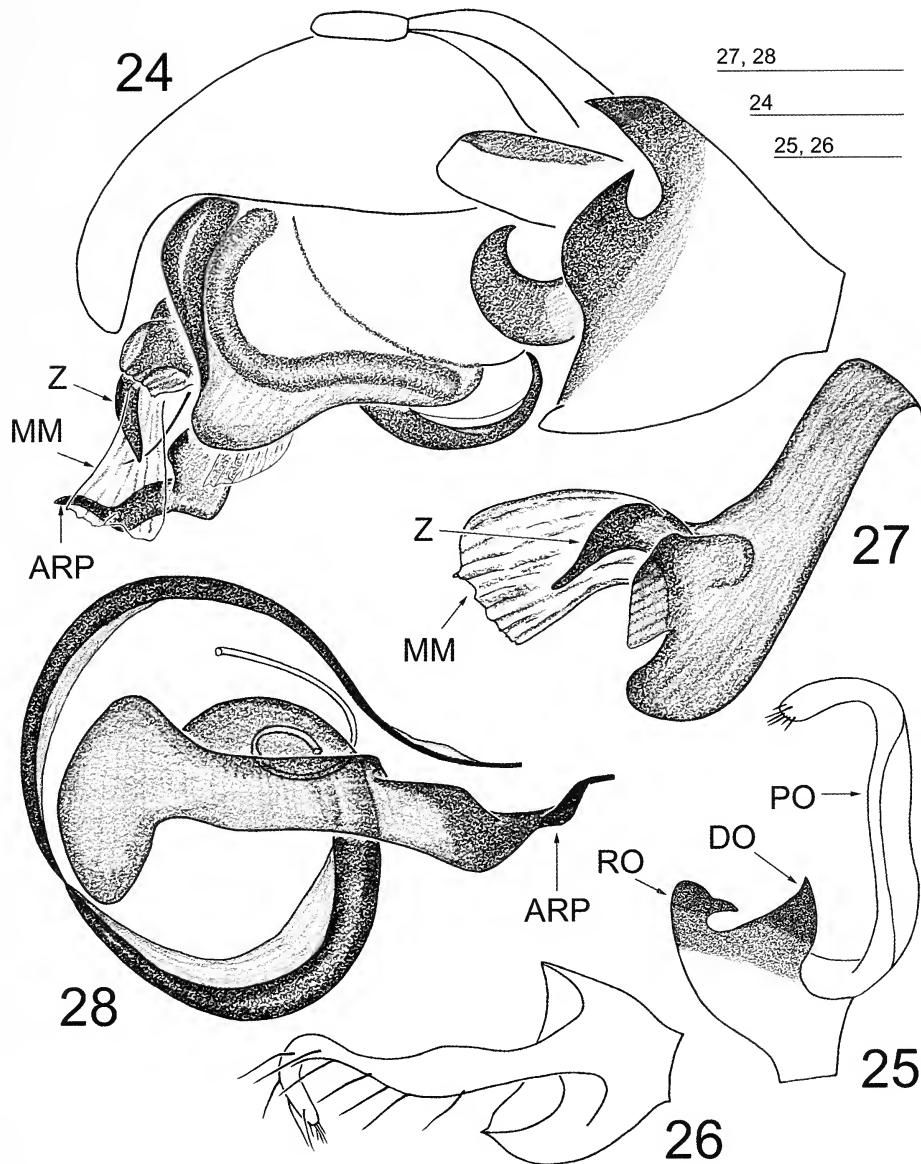
DIAGNOSIS: The new species is characterized by the peculiar shape of the palpal tibia and by the presence of a hook-like outgrowth on the distal suprategular apophysis in the male, as well as by the beak-like downward-turned epigynal process in the female.

DESCRIPTION: Male (holotype). Total length 2.70. Carapace unmodified, dark brown, 1.20 long, 0.93 wide. Chelicerae 0.55 long, unmodified. Legs brown. Leg I 3.29 long ($0.95+0.28+0.85+0.68+0.53$), IV 3.41 long ($1.00+0.28+0.90+0.75+0.48$). Chaetotaxy: 1.1.1.1, length of spines about 1.5 diameter of segment. TmI 0.36. Metatarsus IV without trichobothrium. Palp as in Figs 24-28: palpal tibia strongly modified: retrolateral outgrowth claw-shaped; dorsal one conical, sharpened; prolateral outgrowth narrow, very long, arched distally. Paracymbium small, simple. Distal suprategular apophysis straight, rounded apically, with a hook-like outgrowth distally (“Z” in Figs 24, 27) and a small flat lobe near its base. Median membrane long and covering tips of radical anterior apophysis and of embolus. Radical part of embolic division small, rounded; anterior apophysis strongly protruded, twisted; embolus long, with a membranous edge, forming a wide circle. Abdomen 1.63 long, 0.93 wide; dark grey, with sparse strong hairs dorsally.

Female (from Mt Meron). Total length 2.75. Habitus as in Fig. 29. Carapace dark brown, unmodified, 1.05 long, 0.88 wide. Chelicerae unmodified, 0.43 long. Leg I 3.29 long ($0.95+0.33+0.80+0.68+0.53$), IV 3.41 long ($1.03+0.30+0.85+0.73+0.50$). Chaetotaxy: 1.1.1.1, length of spines about 2 diameter of segment, or a bit longer. TmI 0.38. Abdomen 2.05 long, 1.30 wide, dark grey, with sparse strong hairs dorsally. Epigyne as in Figs 30-33: ventral plate well protruding, turned down, beak-like. Dorsal plate rectangular with rounded angles.

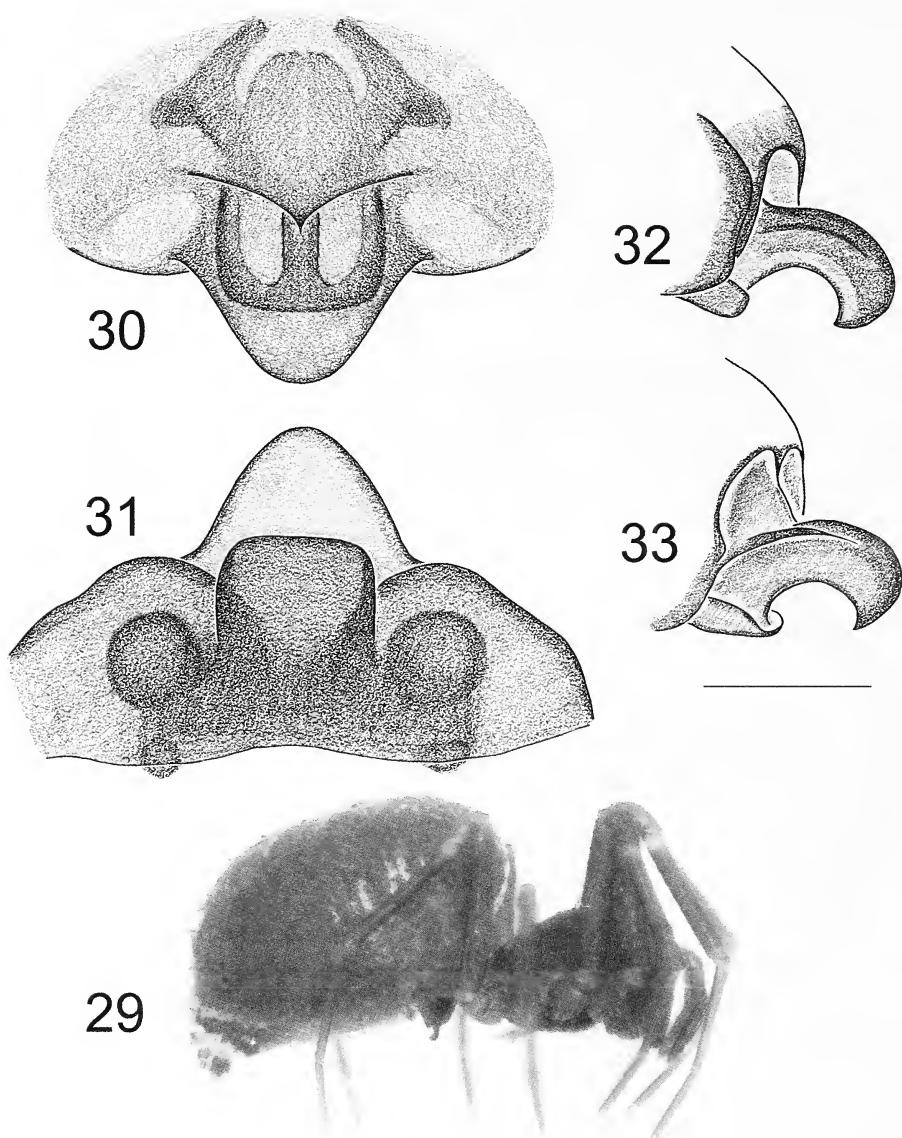
TAXONOMIC REMARKS: This species is similar to the South European *T. auritus* (L. Koch, 1869) and the West Mediterranean *T. trifidus* Denis, 1965, but differs clearly by the shape of the palpal tibia, the presence of a hook-like outgrowth on the distal suprategular apophysis, as well as by the beak-like epigynal process which is strongly turned downwards.

DISTRIBUTION: The species is known only from the Upper Galilee, Israel.



FIGS 24-28

Trichoncus rostralis sp. n., ♂ paratype from Mt Meron. (24) Left palp, retrolateral view. (25-26) Palpal tibia, prolateral and dorsal view, respectively. (27) Distal suprategular apophysis. (28) Embolic division.



FIGS 29-33

Trichoncus rostralis sp. n., ♀ paratype from Mt Meron. (29) Habitus, lateral view (not to scale). (30-31) Epigyne, ventral and dorsal view, respectively. (32-33) Epigyne, lateral view, different aspects.

***Troxochrus triangularis* sp. n.**

Figs 34-35, 40-48

HOLOTYPE: ♂; ISRAEL, Upper Galilee, env. of En Ya'aqov ($33^{\circ}0'27.5''N$ $35^{\circ}14'20.0''E$), pitfall traps; 19.-24.I.2007; leg. I. Shtirberg.

PARATYPES: 1 ♂, 3 ♀; from same locality, collected together with the holotype. – 2 ♀ (ZMMU); same, pitfall traps; 14.-19.I.2007; leg. I. Shtirberg. – 8 ♂; 3 ♂, 2 ♀ (MHNG); 3 ♂ (ZMMU); Mt Meron, Meron Field Station ($32^{\circ}59'53.86''N$ $35^{\circ}25'37.23''E$); 18.-25.II.2007; leg.

T. Levanony. – 1 ♀ (MHNG); same; 2.IV.2011; leg. T. Levanony. – 1 ♂; ca 8 km SE of Beit-Shemesh, env. of Matta ($31^{\circ}42'47.8''N$ $35^{\circ}3'56.0''E$), pitfall trap 14D; 13.-18.I.2007; leg. I. Shtirberg.

ETYMOLOGY: The species name, a Latin adjective, refers to the triangle shape of the epigynal aperture.

DIAGNOSIS: The new species is characterized by the peculiar shape of the palpal tibia, as well as by the large and flat embolic division, with a short and narrow embolus proper in the male.

DESCRIPTION: Male (paratype from En Ya'aqov). Total length 1.50. Carapace pale reddish brown, modified as in Figs 34-35, 0.78 long, 0.55 wide, sulci present. Chelicerae 0.28 long, unmodified. Legs yellow. Leg I 1.64 long ($0.53+0.18+0.40+0.28+0.25$), IV 1.65 long ($0.50+0.15+0.43+0.33+0.24$). Chaetotaxy: 1.1.1.1, spines weak, their length about diameter of segment. TmI 0.45. Metatarsus IV without trichobothrium. Palp as in Figs 40-46: palpal tibia elongated, ending in a claw-shaped hook, a small tooth present on pro- as well as on retrolateral side of palpal tibia. Paracymbium small, U-shaped. Distal supraregular apophysis very short, with a sharp tooth. Median membrane long and narrow. Embolic division large and flat, embolus proper short and narrow. Abdomen 0.78 long, 0.50 wide, pale grey.

Female (from En Ya'aqov). Total length 1.45. Carapace 0.75 long, 0.53 wide. Chelicerae 0.30 long. Leg I 1.66 long ($0.50+0.18+0.43+0.30+0.25$), IV 1.64 long ($0.48+0.18+0.43+0.30+0.25$). TmI 0.46. Abdomen 0.78 long, 0.50 wide. Epigyne as in Figs 47-48: aperture large, deep, triangular, with rounded vertexes. Dorsal plate wide, with a slightly emarginate posterior edge with rounded corners. Body and leg coloration, as well as chaetotaxy, as in male.

TAXONOMIC REMARKS: The new species is similar to the Anatolian *T. apertus* Tanasevitch, 2011, but clearly distinguished by the peculiar shape of the palpal tibia and the small embolus proper in the male, as well as by the triangle shape of the epigynal aperture in the female.

DISTRIBUTION: Known from Israel only.

Typhochrestus meron sp. n.

Figs 36-39, 49-57

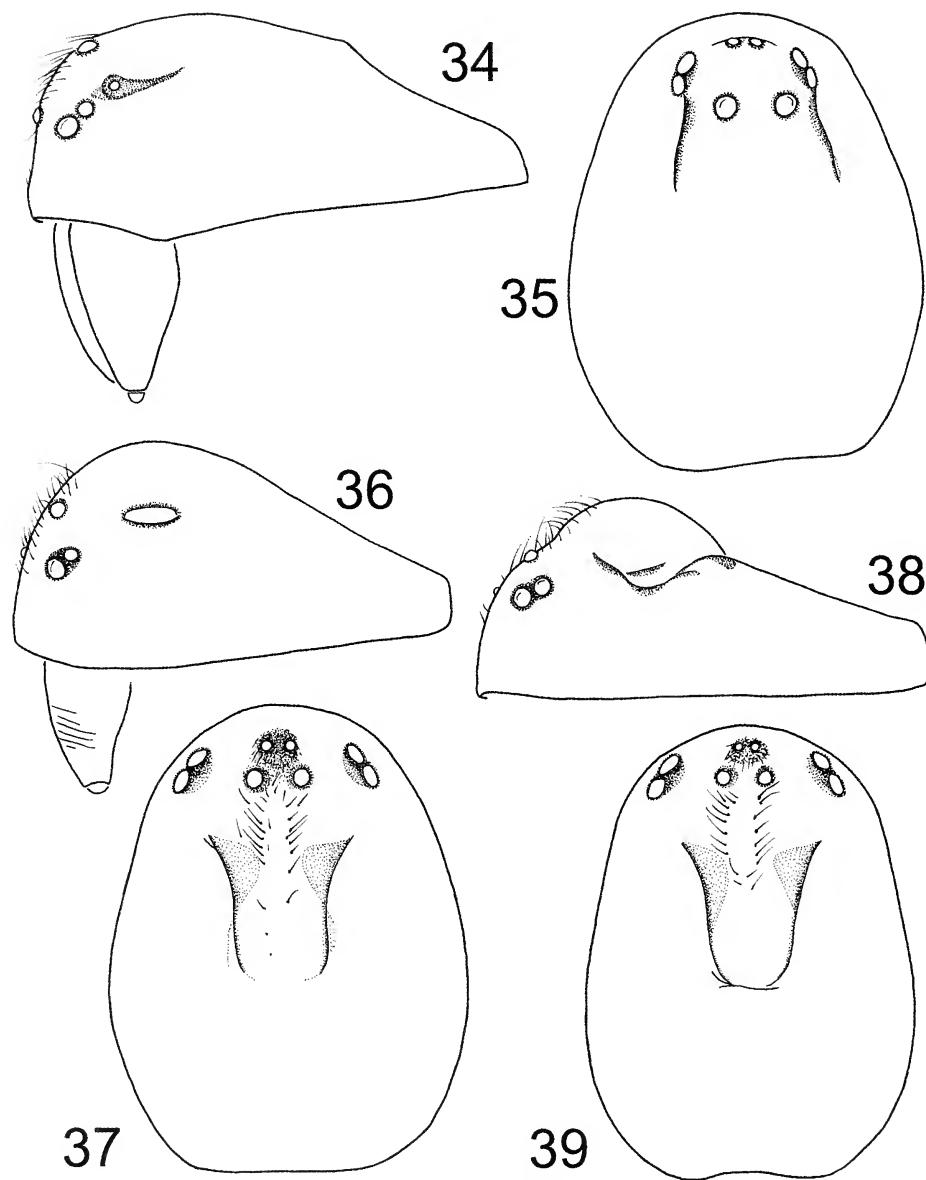
HOLOTYPE: ♂; ISRAEL, Upper Galilee, Mt Meron; 2.IV.2011; T. Levanony.

PARATYPES: 4 ♀; 3 ♀ (MHNG); 2 ♀ (ZMMU); from same locality, collected together with the holotype. – 2 ♂; 2 ♂ (MHNG); Mt Meron, Meron Field Station ($32^{\circ}59'53.86''N$ $35^{\circ}25'37.23''E$); 18.-25.II.2007; leg. T. Levanony. – 1 ♂, env. of En Ya'aqov ($33^{\circ}0'27.5''N$ $35^{\circ}14'20.0''E$); 14.-19.I.2007; leg. I. Shtirberg. – 5 ♀; same; 18.-23.III.2006; leg. I. Shtirberg.

ETYMOLOGY: The specific name, a noun in apposition, refers to the type locality.

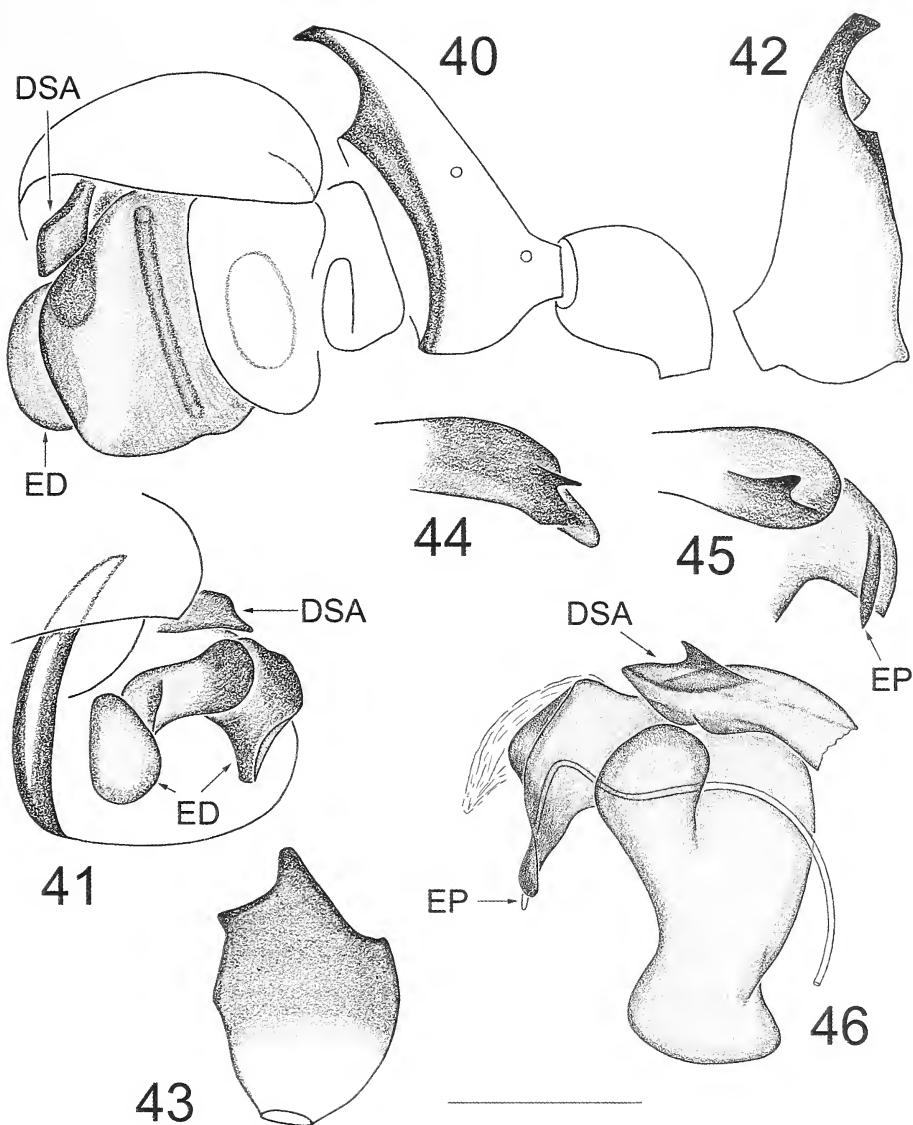
DIAGNOSIS: The new species is characterized by the peculiar shape of the palpal tibia, notably, by the presence of two outgrowths, one of which (the retrolateral one) covers a sharp tooth in dorsal view.

DESCRIPTION: Male (holotype). Total length 1.33. Carapace pale brown, modified as in Figs 36-37, 0.65 long, 0.45 wide, narrow, elongated, sulci slit-like. Chelicerae



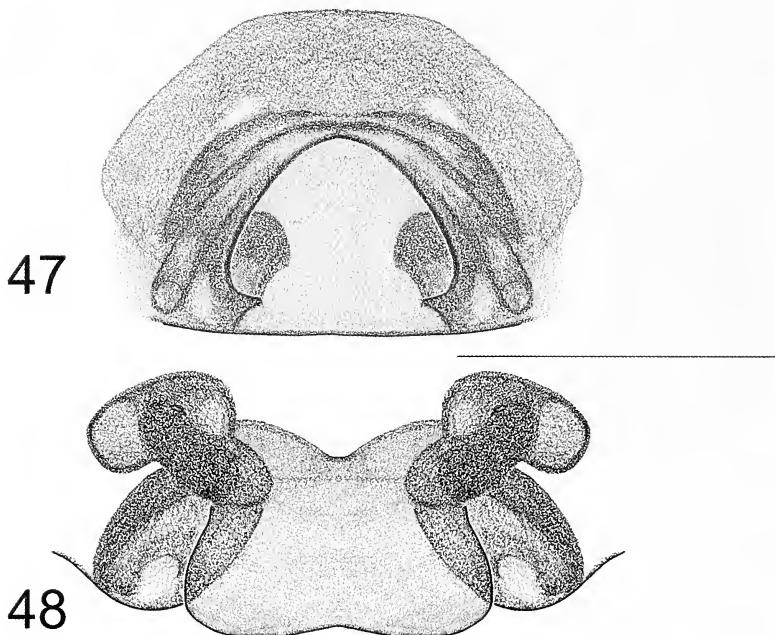
FIGS 34-39

Troxochrus triangularis sp. n., male paratype from En Ya'aqov (34-35) and *Typhochrestus meron* sp. n., male holotype (36-37) and malformed male paratype (38-39). (34, 36, 38) Carapace (with or without chelicera), lateral view. (35, 37, 39) Carapace, dorsal view. Not to scale.



FIGS 40-46

Troxochrus triangularis sp. n., ♂ paratype from En Ya'aqov. (40-41) Left palp, retrolateral and prolateral view, respectively. (42-43) Palpal tibia, prolateral and dorsal view, respectively. (44) Distal suprategular apophysis. (45) Distal suprategular apophysis and distal part of embolic division. (46) Distal suprategular apophysis and embolic division.



FIGS 47-48

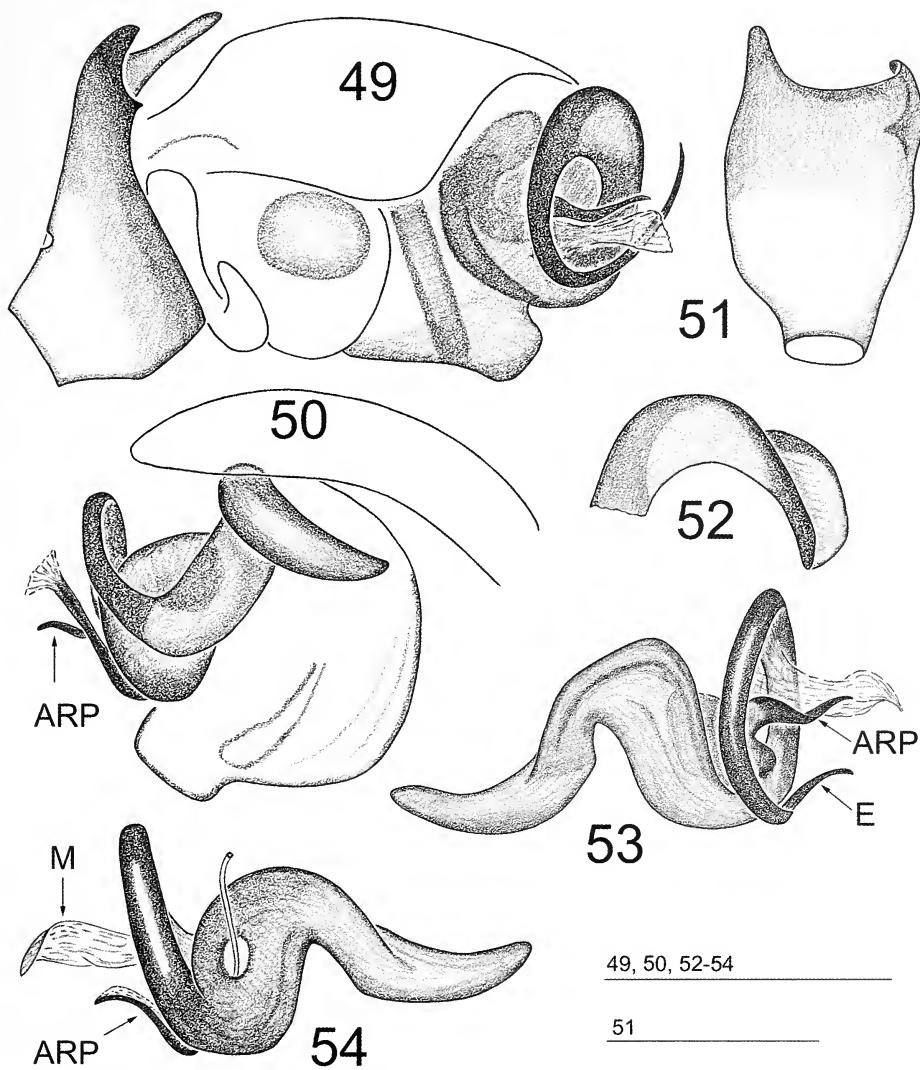
Troxochrus triangularis sp. n., ♀ paratype from En Ya'aqov. (47, 48) Epigyne, ventral and dorsal view, respectively.

0.20 long, unmodified. Legs yellow. Leg I 1.53 long ($0.45+0.15+0.40+0.28+0.25$), IV 1.61 long ($0.48+0.15+0.43+0.30+0.25$). Chaetotaxy: unclear, spines strongly reduced virtually indiscernible. TmI 0.40. Metatarsus IV without trichobothrium. Palp as in Figs 49-54: palpal tibia with two outgrowths and a small sharp tooth at base of retro-lateral outgrowth. Paracymbium small, simple, hook-shaped. Distal suprategular apophysis tongue-shaped. Radical part of embolic division relatively long, curved; embolus forming a loop, anterior radical process wide at base, tapering regularly towards pointed tip. Abdomen 0.68 long, 0.43 wide, pale grey.

Female (from Mt Meron). Total length 1.45. Carapace 0.60 long, 0.45 wide. Chelicerae 0.25 long, unmodified. Leg I 1.51 long ($0.45+0.18+0.35+0.28+0.25$), IV 1.68 long ($0.50+0.18+0.45+0.30+0.25$). Chaetotaxy: 2.2.2.1, spines weak, their length about 1-1.5 diameter of segment. TmI 0.38. Abdomen 0.88 long, 0.55 wide. Epigyne as in Figs 55-56, vulva as in Fig. 57. Body and leg coloration, as well as chaetotaxy, as in male.

TAXONOMIC REMARKS: The new species clearly differs from the other known congeners by the peculiar shape of the palpal tibia (see Diagnosis). The epigyne resembles that of *T. digitatus* (O. P.-Cambridge, 1872), but clearly differs by the sub-parallel copulatory ducts.

DISTRIBUTION: The species is only known from Upper Galilee, Israel.



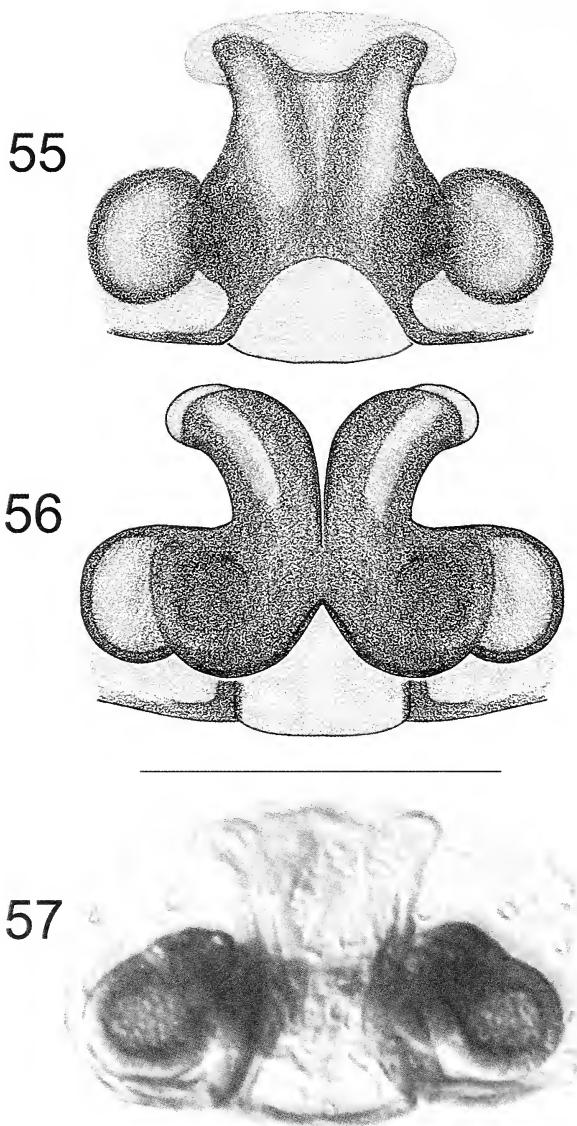
FIGS 49-54

Typhochrestus meron sp. n., ♂ paratype from Mt Meron. (49-50) Right palp, retrolateral and prolateral view, respectively. (51) Palpal tibia, dorsal view. (52) Distal suprategular apophysis. (53-54) Embolic division.

***Walckenaeria stylifrons* (O. P.-Cambridge, 1875a)**

MATERIAL: 1 ♂, 2 ♀ + 1 ♂; ISRAEL, Upper Galilee, Mt Meron, Meron Field Station (32°59'53.86"N 35°25'37.23"E); 7-25.II.2007; leg. T. Levanony.

REMARKS: This species is here newly recorded for the fauna of Israel.



FIGS 55-57

Typhochrestus meron sp. n., ♀ paratype from Mt Meron. (55, 56) Epigyne, ventral and dorsal view, respectively. (57) Vulva, dorsal view.

ACKNOWLEDGEMENTS

I am most grateful to all persons whose collections have been examined in the present study. Special thanks go to Dr Amnon Freidberg (TAU) for the opportunity to work with the collections of the Tel Aviv University, and to Dr Sergei Zonstein (TAU) for his help with fieldwork and for useful comments. Dr Sergei Golovatch (Moscow, Russia) checked the English of an earlier draft, and Dr Peter van Helsdingen (Leiden, Netherlands) kindly reviewed the manuscript.

REFERENCES

AUDOUIN, V. 1826. Explication sommaire des planches d'arachnides de l'Égypte et de la Syrie publiées par Jules-César Savigny offrant un exposé des caractères naturels des genres, avec la distinction des espèces. In: Description de l'Egypte, ou Recueil des observations et des recherches qui ont été faites en Égypte pendant l'expédition de l'Armée française. *Histoire Naturelle* 1 (4): 1-339.

BERLAND, L. 1932. Voyage de MM. L. Chopard et A. Méquignon aux Açores (août-septembre 1930). II; Araignées. *Annales de la Société entomologique de France* 101: 69-84.

BLACKWALL, J. 1852. Descriptions of some newly discovered species of Araneida. *Annals and Magazine of Natural History* (2) 10: 93-100.

CAMBRIDGE, O. P. 1872. General list of the spiders of Palestine and Syria, with descriptions of numerous new species, and characters of two new genera. *Proceedings of the Zoological Society of London* 1871: 212-354.

CAMBRIDGE, O. P. 1875a. On some new species of *Erigone*. *Proceedings of the Zoological Society of London* 1875: 190-224, 323-335.

CAMBRIDGE, O. P. 1875b. Notes and descriptions of some new and rare British spiders. *Annals and Magazine of Natural History* (4) 16: 237-260.

DENIS, J. 1965. Notes sur les érigonides. XXVIII Le genre *Trichoncus* (Araneae). *Annales de la Société entomologique de France* (N.S.) 1: 425-477.

HORMIGA, G. 2000. Higher level phylogenetics of erigonine spiders (Araneae, Linyphiidae, Eriigoninae). *Smithsonian Contributions to Zoology* 609: 1-160.

KOCH, C. L. 1834. Arachniden. In: HERRICH-SCHÄFFER, G. A. W. (ed.). Deutschlands Insecten, Band 34, Hefte 122-127. F. Pustet, Regensburg.

KOCH, C. L. 1836. Die Arachniden, 3. C. H. Zeh'schen Buchhandlung, Nürnberg, 104 pp.

KOCH, L. 1869. Beitrag zur Kenntniss der Arachnidenfauna Tirols. *Zeitschrift des Ferdinandeaums für Tirol und Vorarlberg* (series 3) 14: 149-206.

KULCZYŃSKI, W. 1898. Symbola ad faunam Aranearum Austriae inferioris cognoscendam. *Różprawy i sprawozdania z posiedzeń wydziału matematycznego przyrodniczego Akademii umiejętności (Kraków)* 36: 1-114.

PLATNICK, N. I. 2012. The world spider catalog, version 13.0. *American Museum of Natural History*. Online at <http://research.amnh.org/iz/spiders/catalog>. DOI: 10.5531/db.iz.0001.

PLUESS, T., OPATOVSKY, I., GAVISH-REGEV, E., LUBIN, Y. & SCHMIDT, M. H. 2008. Spiders in wheat fields and semi-desert in the Negev (Israel). *The Journal of Arachnology* 38: 368-373.

SAARISTO, M. I. & TANASEVITCH, A. V. 1996. Redelimitation of the subfamily Micronetinae Hull, 1920 and the genus *Lepthyphantes* Menge, 1866 with descriptions of some new genera. *Berichte des Naturwissenschaftlich-Medizinischen Vereins in Innsbruck* 83: 163-186.

SIMON, E. 1881. Description d'espèces nouvelles du genre *Erigone*. *Bulletin de la Société zoologique de France* 6: 233-257.

SIMON, E. 1884a. Les arachnides de France, volume 5, parts 2-3. *Librairie Encyclopédique de Roret, Paris*, pp. 180-885, pl. 26-27.

SIMON, E. 1884b. Études arachnologiques. 16^e Mémoire. XXIII. Matériaux pour servir à la faune des arachnides de la Grèce. *Annales de la Société entomologique de France* (6) 4: 305-356.

SIMON, E. 1918. Descriptions de plusieurs espèces d'arachnides récemment découvertes en France. (Quatrième note). *Bulletin de la Société entomologique de France* 1918: 152-155.

TANASEVITCH, A. V. 1987. The linyphiid spiders of the Caucasus, USSR (Arachnida: Araneae: Linyphiidae). *Senckenbergiana biologica* 67 (4/6): 297-383.

TANASEVITCH, A. V. 1989. The linyphiid spiders of Middle Asia (Arachnida: Araneae: Linyphiidae). *Senckenbergiana biologica* 69 (1/3): 83-176.

TANASEVITCH, A. V. 2011. On linyphiid spiders (Araneae) from the Eastern and Central Mediterranean kept at the Museum d'histoire naturelle, Geneva. *Revue suisse de Zoologie* 118 (1): 49-91.

TANASEVITCH, A. V. & SAARISTO, M. I. 2006. Reassessment of the Nepalese species of the genus *Lepthyphantes* Menge s.l. with description of new genera and species (Araneae, Linyphiidae, Micronetinae). *Senckenbergiana biologica* 86 (1): 11-38.

WIDER, F. 1834. Arachniden. In: REUSS, A. (ed.). *Zoologische Miscellen. Museum Senckenbergianum: Abhandlungen aus dem Gebiete der beschreibenden Naturgeschichte* 1: 195-276.

WUNDERLICH, J. 1972. Zur Spinnenfauna Deutschlands, XII. Neue und seltene Arten der Linyphiidae und einige Bemerkungen zur Synonymie (Arachnida: Araneae). *Senckenbergiana biologica* 53: 291-306.

WUNDERLICH, J. 1980. Linyphiidae aus Süd-Europa und Nord-Afrika (Arachn.: Araneae). *Abhandlungen und Verhandlungen des Naturwissenschaftlichen Vereins zu Hamburg (N.F.)* 23: 319-337.

WUNDERLICH, J. 1992. Die Spinnen-Fauna der Makaronesischen Inseln: Taxonomie, Ökologie, Biogeographie und Evolution. *Beiträge zur Araneologie* 1: 1-619.

***Seticotasteromimus* gen. n. *jarawa* sp. nov. from the Andaman Islands (Coleoptera, Curculionidae)**

Christoph GERMANN

Naturhistorisches Museum der Burgergemeinde Bern, Bernastrasse 15, CH-3005 Bern, and Natur-Museum Luzern, Kasernenplatz 6, CH-6003 Lucerne, Switzerland.

Email: germanchristoph@gmail.com

***Seticotasteromimus* gen. n. *jarawa* sp. nov. from the Andaman Islands (Coleoptera, Curculionidae).** - The new genus is similar to *Cotasteromimus* Chûjô & Voss, 1960, and is the fourth genus within Cotasteromimina Morimoto, 1962. The previous distribution area of the genus comprised Japan, Korea, Taiwan and Malaysia. The new species was found while beating branches in a tropical lowland forest.

Keywords: Molytinae - Pissodini - new genus - new species - taxonomy - Oriental region.

INTRODUCTION

The subtribe Cotasteromimina Morimoto, 1962 comprised previously the three genera *Cotasteromimus* Chûjô & Voss, 1960 from Japan, Korea and Taiwan, *Pseudohyllobius* Morimoto, 1962 from Japan, and *Cotasteromorphus* Kojima, 2005 from Malaysia.

Kojima & Idris (2005) provided a key to the genera. Here I present a new genus and a new species of Cotasteromimina from the Andaman Islands.

MATERIAL AND METHODS

Photographs were taken with a 5-megapixel digital camera (Leica DFC 420), the genital organs were photographed in glycerine. Series of images were captured through a binocular (Leica MZ16) and processed by an Auto-Montage software (Imagic Image Access, Version 8).

All measurements were taken digitally with the measurement-tool of the above mentioned Auto-Montage software. Body length was measured from the anterior margin of the pronotum to the apex of the elytra.

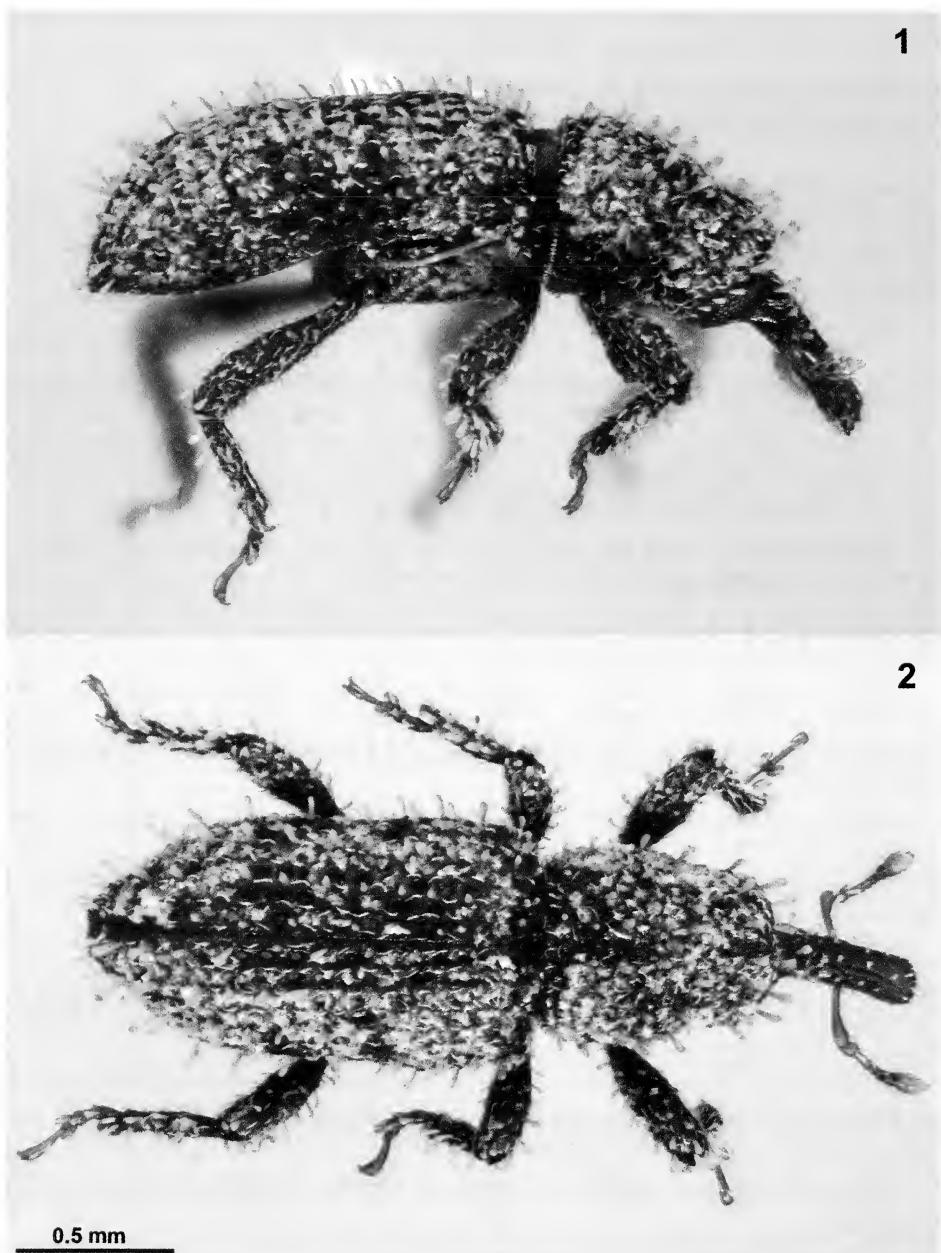
ABBREVIATIONS: MHNG – Muséum d'histoire naturelle de Genève, Switzerland.

TAXONOMIC PART

***Seticotasteromimus* gen. n.**

Figs 1-5

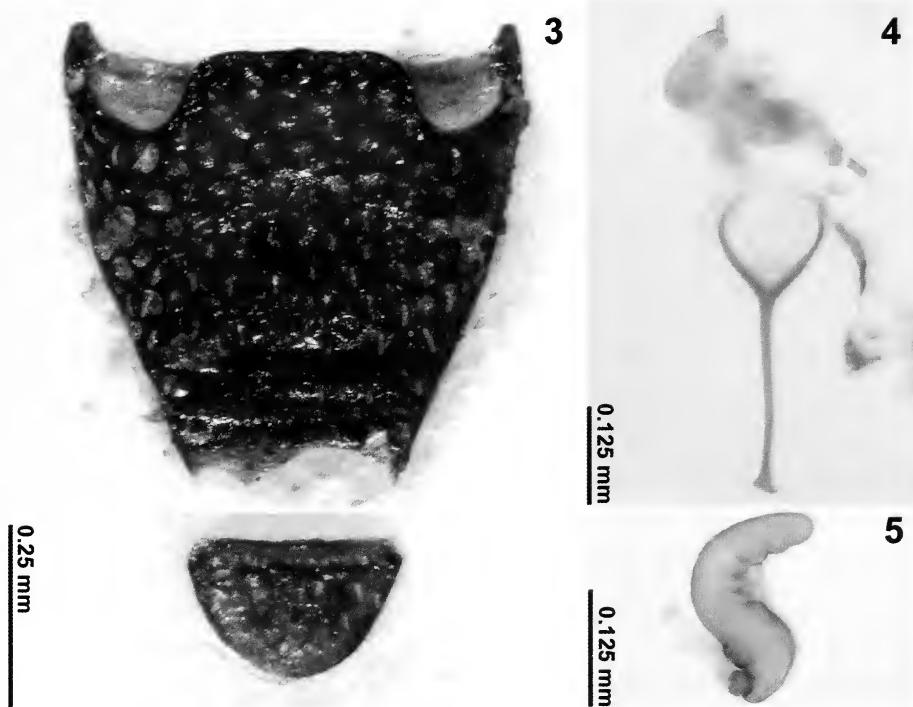
TYPE SPECIES: *Seticotasteromimus jarawa* sp. nov., designated here by monotypy.



FIGS 1-2

Habitus of *Seticotasteromimus jarawa* sp. nov. (1) lateral- and (2) dorsal view.

DESCRIPTION: Head hidden in pronotum; frons vertical, rostrum straight; eyes below level of dorsum of rostrum, oblong-oval and flat. Antennae 7-segmented with strong first segment. Pronotum longer than wide, constricted at first third, punctures



FIGS 3-5

Seticotasteromimus jarawa sp. nov. (3) Ventrites (ventrite five is separated from the others due to genital extraction). (4) Ovipositor (above) and spiculum ventrale (below). (5) Spermatheca.

coarse and of irregular shape. Scutellum visible, pentagonal. Elytra elongated, parallel sided. Shoulders distinct, hind wings present. Integument of body consisting of long, raised clubbed bristles. Suture between first and second ventrite indistinct. Legs with femorae edentate, tibiae all uncinate at outer angle, third tarsal segment bilobed, claws simple, free.

Seticotasteromimus gen. n. is compared with *Cotasteromimus* described by Chûjô & Voss (1960), and shares the following characters: i) Antennae 7-segmented with strong first segment, ii) hind wings present, iii) suture between first two ventrites indistinct, iv) Femorae edentate, v) tibiae all uncinate at outer angle, vi) 3rd tarsal segment bilobed. *Seticotasteromimus* gen. n. differs from *Cotasteromimus* in the following: i) habitus with elongate and parallel sided elytra, ii) distinct (prominent) shoulders, iii) very long raised bristles, iv) peculiar shape of head and rostrum (vertical frons, eyes below rostral dorsum, rostrum straight), v) scutellum visible, pentagonal.

A new genus belonging to the tribe Pissodini, subtribe Cotasteromimina (Curculionidae: Molytinae).

ETYMOLOGY: The genus name of masculine gender is composed of the noun “seta” (bristle) – a typical character of the new genus and species – and the name of the similar genus *Cotasteromimus*.

Seticotasteromimus jarawa sp. nov.

Figs 1-5

HOLOTYPE: female: INDIA, South Andaman Island, Sippighat // N11°35'38" / E92°41'41", 11.12.2006 // Holotype *Seticotasteromimus jarawa* sp. nov. des. Germann 2012" (MHNG, without registration number).

DESCRIPTION

Size: 2.1 mm (without rostrum).

Colour: dark brown, antennae and tarsi auburn.

Head, rostrum and antennae: head globular, hidden in the pronotum; frons vertical, rostrum straight, 4 times longer than wide, parallel sided, surface striate; eyes below level of rostral dorsum, vertical oval, flat. Antennae inserted behind middle of rostrum; scrobes reaching the eyes. Antennal scape hardly longer than width of rostral apex. Antennal funiculus consisting of 7 segments, all about as long as wide. First segment as wide as scape, following three segments one third of its breadth, segment 5 half as wide, segment 6 two thirds as wide as first one, segment 7 as wide as first one, club oval. Integument: Frons with thin and bowed hairs, dorsum of rostrum with sparsely standing, bowed clubbed bristles; same bristles on antennal scape and first segment of funiculus.

Pronotum: longer than wide (length/width: 1.2); widest along its middle, constricted at first third, irregularly and coarsely punctuate, spaces in between reduced to thin margins. Integument consisting of thin, bowed hairs and long (4 x longer than wide) raised, clubbed light brown bristles. Scutellum visible, pentagonal.

Elytra: elongate (length/width: 1.7), parallel sided from shoulders to last third. Distinct shoulders, hind wings present. In lateral view flattened at disc and regularly rounded at decline. Ten elytral striae, striae very coarsely and deeply, regularly punctuate, wider than interspaces. Interspaces regularly set alternately with thin and bowed hairs, and long (4 x longer than wide) raised, clubbed light brown bristles.

Underside: coarsely punctuate, four apparent ventrites, suture between the first two (fused) ventrites indistinct (Fig. 3). Coxae separated from each other as follows: procoxae by their diameter, mesocoxae by 1 ½ and metacoxae by two times of their diameter.

Legs: femora edentate, strong, tibiae all uncinate at outer angle. Third tarsal segment bilobed. Claw segment gracile, claws simple, free. Integument consisting of both, thin and bowed hairs, and long (3 x longer than wide) raised, clubbed light brown bristles.

Female genitalia: Figs 4-5; male unknown.

ETYMOLOGY: The species name refers to an indigenous tribe of the Andaman archipelago, and is a noun in apposition.

BIONOMY: *S. jarawa* sp. nov. was beaten from branches in a mosaic of primary and secondary tropical lowland forest near Sippighat on South Andaman-Island.

DISTRIBUTION: The present distribution area of Cotasteromimina reaches from India (Andaman Islands) to Taiwan, Korea and Japan in the East, down to Malaysia (Cameron Highlands) in the South (Fig. 6). *Seticotasteromimus* gen. n. is presently solely known from South Andaman Island. *Cotasteromimus* with *C. morimotoi* Chûjô

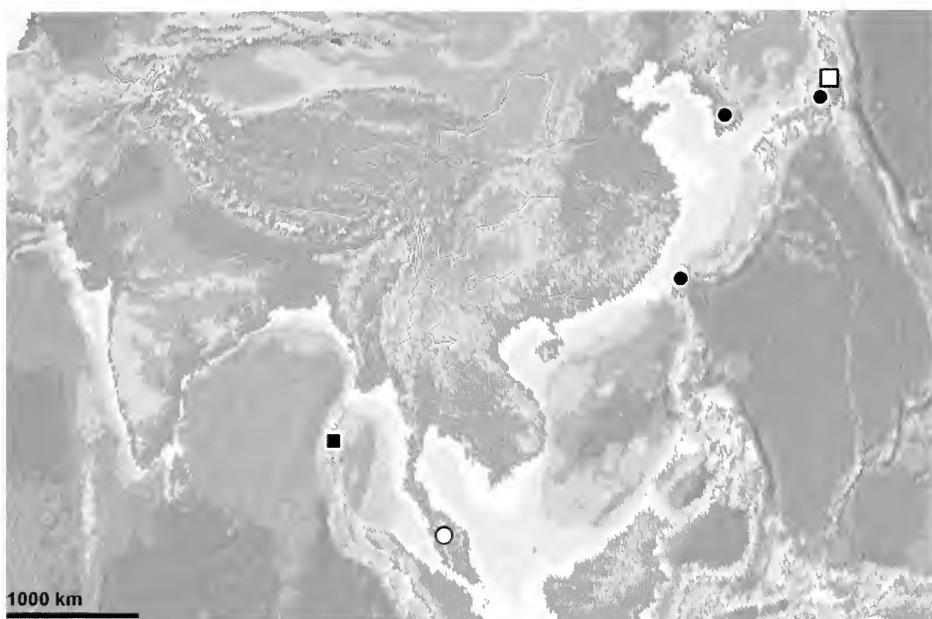


FIG. 6

Map of the finding locations of *Seticotasteromimus* gen. n. (black square), *Cotasteromimus* Chûjô & Voss, 1960 (black circles), *Cotasteromorphus* Kojima, 2005 (white circle), and *Pseudohylobius* Morimoto, 1962 (white square) in South East Asia.

& Voss, 1960 and *C. squamiger* Morimoto & Miyakawa, 1985 is known from Taiwan, Korea and Japan. *Cotasteromorphus chujoi* Kojima, 2005 was described from Malaysia, and *Pseudohylobius setosus* Morimoto, 1962 from Japan.

REFERENCES

CHÛJÔ, M. & VOSS, E. 1960. Neue Curculioniden-Subfamilie, -Gattungen und -Arten von Japan (Coleoptera, Curculionidae). *Memoirs of the Faculty of Liberal Arts and Education, Kagawa University, part II, natural science*, 94: 1-17.
KOJIMA, H. & IDRIS, A. G. 2005. *Cotasteromorphus*, a new Cotasteromimina (Coleoptera, Curculionidae, Moltytinae, Pissodini) from the Malaysian Moss Forests. *Elytra, Tokyo* 33 (1): 134-141.

Notes on some Old World Prionapterygini Landry, 1995 (Lepidoptera: Pyraloidea, Crambidae, Crambinae), with descriptions of new species

Graziano BASSI

Via Sant'Agostino 51, I-10051 Avigliana (To).

e-mail: graziano.bassi@alice.it

Notes on some Old World Prionapterygini Landry, 1995 (Lepidoptera: Pyraloidea, Crambidae, Crambinae), with descriptions of new species. - *Zovax venus* Bassi sp. n. along with two new species of *Mesolia* Ragonot, 1889 (*M. meyi* Bassi sp. n. and *M. alborzella* Bassi sp. n.) and four new species of *Prionapteryx* Stephens, 1834 (*P. banaadiensis* Bassi sp. n., *P. eberti* Bassi & Mey sp. n., *P. helena* Bassi sp. n. and *P. somala* Bassi sp. n.) are described. A lectotype is designated for *Z. whiteheadii* (Wollaston), 1879. *Loxophantis* Meyrick, 1935 is newly considered as a synonym of *Prionapteryx*, which causes the following changes: *Prionapteryx triplecta* (Meyrick, 1935), **comb. n.**, and *Prionapteryx albimaculalis* (Hampson), 1919 = *Loxophantis pretoriella* Bleszynski, 1970 **syn. n.**. *P. triplecta* is compared to *P. diaplecta* (Meyrick), *P. albimaculalis* is compared to *P. plumbealis* (Hampson) and *M. meyi* is compared to *M. uniformella* Janse 1922. All species are fully illustrated. The habitus of *P. amathusia* Bassi & Mey, 2011 is illustrated and corrections to Bassi & Mey (2011) are given. A list of species presently placed in *Prionapteryx* and which should be transferred to *Surattha* Walker, 1863 is given.

Keywords: *Mesolia* - *Prionapteryx* - *Surattha* - *Zovax* - new species - Afro-tropical - Palearctic.

INTRODUCTION

Bernard Landry (1995: 56-59) established the tribe Prionapterygini and stated its key characters. At present in GLOBIZ (Nuss *et al.*, 2012) under this tribe are provisionally listed 12 genera with 119 species. The Prionapterygini seem to be widely distributed through arid and semi-arid regions of the world. African species are characterized by the presence of a conical frons with one or more corneous points and many species have the forewing's external margin with a "hook", i.e. a narrowing in the termen between veins M2 and M3, with tufty fringes, which gives a hooked appearance to the wing apex. In the male genitalia of African species the costa of the valve is generally simple with, in some genera, a basal costal process or, only in one species, a small costal process; the tegumen is stocky; and the phallus is generally slender. In the female genitalia the apophyses posteriores are very long, straight, with a flat sclerite just below the papillae anales in some cases basally; the ostium bursae

is not produced and opening on the apical margin of the 7th abdominal segment without modifications of the segment or in the intersegmental membrane between segments VII and VIII; the ductus seminalis is opening basally in the corpus bursae. The males' sclerifications of abdominal segment VIII are well developed, slightly variable, with the tergite often reinforced by additional sclerotized bands.

Based on the study of undetermined material from major museums and my own collection I discovered some interesting new species belonging to three *Prionapterygini* genera, which I describe below, and I clarify the status of some already known species.

MATERIAL AND METHODS

The descriptions are based on all available specimens. The length of the labial palpus is compared to the maximum diameter of the composite eye in side view. I follow Robinson (1976) for dissection genitalia technique and Klots (1970) for terminology. All specimens studied came from the collections listed in the abbreviations list.

Abbreviations used:

BMNH	Natural History Museum, London, England.
CB	Bassi collection, Avigliana, Italy.
GS...GB	Genitalia slide.... G. Bassi.
GS...SB	Genitalia slide.... S. Błeszyński.
MHNG	Muséum d'histoire naturelle, Geneva, Switzerland.
MFNB	Museum für Naturkunde Leibniz-Institut für Evolutions-und Biodiversitätsforschung an der Humboldt-Universität zu Berlin, Germany.
RMCA	Royal Museum for Central Africa, Tervuren, Republic of South Africa.
RSA	Republic of South Africa.
SAM	South African Museums, Cape Town, Republic of South Africa.
SMNK	Staatliches Museum für Naturkunde Karlsruhe, Germany.
TMSA	Distong National Museum of Natural History (formerly the Transvaal Museum), Pretoria, Republic of South Africa.
USNM	National Museum of Natural History, Smithsonian Institution, Washington, D.C., U.S.A.
ZSM	Zoologische Staatsammlungen München, Munich, Germany.

SYSTEMATIC PART

Identification key for the *Prionapterygini* genera treated here (African and Middle Eastern species) based on male genitalia:

1a	Coremata present (Figs 15, 17)	2
1b	Coremata absent	3
2	Coremata feathery; gnathos as long as or longer than uncus	<i>Zovax</i>
2b	Coremata spatulate, sclerotized; gnathos clearly shorter than uncus . . .	<i>Mesolia</i>
3a	Uncus strongly down curved; valva broad; phallus with pointed tip . . .	<i>Surattha</i>
3b	Uncus not strongly down curved; valva elongate; phallus with tip not pointed	<i>Prionapteryx</i>

Identification key for the Prionapterygini genera treated here (African and Middle Eastern species) based on female genitalia:

- 1a 8th abdominal segment long, tubular (Fig. 44) *Prionapteryx*
- 1b 8th abdominal segment clearly shorter than in *Prionapteryx* 2
- 2a Papillae anales fully developed, basally with ring of hair-like scales . . *Surattha*
- 2b Papilla anales subrectangular, basally without ring of hair-like scales 3
- 3a Corpus bursae simple; dorsal sclerite of papillae anales present *Zovax*
- 3b Corpus bursae bilobed; dorsal sclerite of papillae anales absent *Mesolia*

***Zovax* Błeszyński, 1962**

Zovax Błeszyński, 1962: 130; type species: *Prionapteryx whiteheadii* Wollaston, 1879, by original designation.

DIAGNOSIS: Small to medium sized species with well-developed ocelli and frons with corneous point. Forewing with or without hook. Male genitalia with uncus and gnathos well-developed; valvae without basal costal process. Female genitalia with dorsal sclerite in subrectangular papillae anales; apophyses posteriores basally bulged; corpus bursae with lateral pouch.

DIFFERENTIAL DIAGNOSIS: The most closely related genus seems to be *Mesolia* Ragonot. The male genitalia of *Mesolia* have flat and sclerotized coremata (Fig. 15), and the gnathos shorter than uncus. The female genitalia of *Zovax* are most similar to *Mesolia*, differing by the presence of a dorsal sclerite in the papillae anales, the apophyses posteriores basally bulged, and the corpus bursae with a moderate lateral pouch.

REMARKS: Further investigations are needed to fully understand the phylogenetic relationships among the species of this genus. Coremata are very delicate structures, rarely considered in slide mounting. In absence of fresh material I cannot confirm the presence of coremata in *Z. whiteheadii* and in *Z. vangoghi* Błeszyński. Moreover, I could not yet study females of these two species, and they are very important for generic relationships.

***Zovax whiteheadii* (Wollaston, 1879)**

Prionapteryx whiteheadii Wollaston, 1879: 340-341.

Zovax whiteheadii. – Błeszyński, 1962: 130.

LECTOTYPE (PRESENT DESIGNATION): BMNH; ♂; St. Helena; Wollaston Coll. 79-68; GS 7146 B[ritish] M[useum].

PARALECTOTYPES: BMNH; 1 ♀ and 1 specimen without abdomen; same data as holotype; GS 20422 B[ritish] M[useum].

DISTRIBUTION: Known only from St. Helena Island.

REMARKS: Wollaston in the original description did not mention the exact number of syntypes, but only (1879: 341) "the very few examples which I obtained". Kevin Tuck (pers. comm.) confirms to me that only 3 specimens are in the BMNH collection.

***Zovax vangoghi* Błeszyński, 1965**

Zovax vangoghi Błeszyński, 1965b: 7.

HOLOTYPE: ZSM; ♀; Sudan, Ed Damer, Hudeiba, 23. VII. 1962, Leg. R. Remane; GS 4062 SB.

PARATYPES: BMNH, ZSM, USNM; 27 ♂♂, 1 ♀♀; same data as holotype.

DISTRIBUTION: Known only from the type locality.

Zovax venus Bassi sp. n.

Figs 1, 17, 18, 19, 32, 33

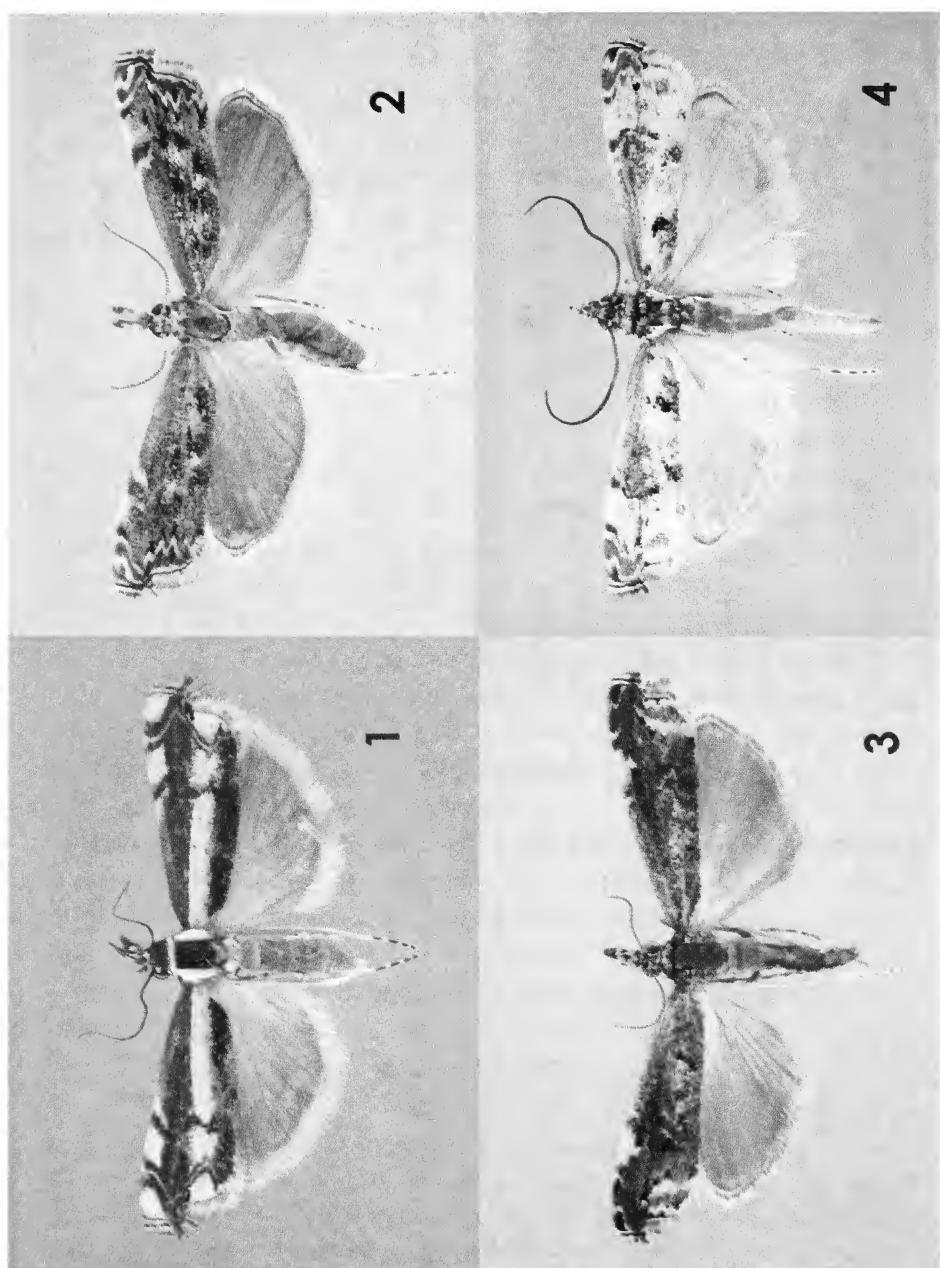
HOLOTYPE: 1- '♀'; 2- '[MOZAMBIQUE, Gaza Province, 24° 40'S, 33°31'E] Chibuto | 1919 | A.S. Moreira'; 3- 'GS-3506-GB'; 4- 'HOLOTYPE | Zovax | venus Bassi'. Deposited in TMSA.

PARATYPES: BOTSWANA. – CB; 1♂; Maun, 10 m[i][es] N[orth], 19°51'S, 23° 24'E, 16.I.1978, M. J. Scoble legit. – CB; 1♂; Maun, 957 m, 1-2.XII.2010, 19°56'S 23°31'E, lux, G. Bassi legit. – CB; 1♀; Chobe N[ational] P[ark], Savuti Camp, 950 m, 30.XI.2010, lux, G. Bassi legit. – MALAWI. – TMSA and CB; 2♀♀; Lilongwe, XII.[19]75, J. Meyer legit. – MHNG and CB; 2♀♀; C[entral] Africa, Nsanje District, 125 km. S. Blantyre, Mwabvi Wildlife Reserve, 16°39'S 35°03'E, 121 m, 30-31.XII.2008, Kovtunovich V. & Ustjuzhanin P. legit. – CB; 1♀; C[entral]. Africa, 40 km. S. Nkhata Bay, Kande, 11°56'S 34°07'E, 520 m, 5.I.2009, Kovtunovich V. & Ustjuzhanin P. legit; GS 5310 GB. – MOZAMBIQUE. – MHNG; 1♂; 120 km. SE Milange, 16°42'S 36°27'E, 370 m, 16.IV.2011, Kovtunovich V. & Ustjuzhanin P. legit; GS 5350 GB – NAMIBIA. – TMSA; 2♀♀; Andara, Okavango, 16.I.1956, B. de Winter legit. – ZIMBABWE. – TMSA and CB; 3♂♂, 8♀♀; Victoria Falls, Coll[ected by] Janse; GS 3540 GB. – CB; 1♂, 1♀; Sawmills, Rhod[esia], 2 and 4.II.[19]18, A. J. T. Janse legit.

ETYMOLOGY: The specific epithet refers to the Roman goddess of beauty, on account of the really graceful coloration of this species.

DIAGNOSIS: *Zovax venus* (Fig. 1) has a unique wing pattern among African Prionapterygini: no other species shows similar blackish brown and white coloration. In the male genitalia the gnathos is not so delicate as in *Z. whiteheadii* (Fig. 20) and is not so strong as in *Z. vangoghii* (Fig. 21). Female genitalia (Figs 32, 33) are characterized by the sclerotized corpus bursae, corrugated and with long spines in its internal wall.

DESCRIPTION (Fig. 1): Wingspan: males 19-20 mm; females 19-24 mm. Labial palpi 3 x longer than widest diameter of eye, brown with medial transverse band whitish. Maxillary palpi white with medial band brown. Frons white and medially brown, rounded, clearly produced, with a moderate corneous point. Antennae: in male lightly serrate, bronze brown; in female simple, bronze brown. Ocelli poorly developed. Chaetosemata reduced. Head brown with white spot between antennae and white tuft behind chaetosemata. Patagium medially brown and white laterally. Tegulae white. Thorax brown. Abdomen bronze brown. Legs white with tarsomeres white annulated with brown; tibial spurs long and delicate. Forewings ground color brown; apex rounded, white; hook well defined between M₂ and M₃; costa brown in proximal 1/2, then white with double curved brown bands; midwing stripe brown, complete from base through cell up to termen at hook level; medial stripe white, well-developed, reaching termen; dorsal area brown; subterminal area with two brown fasciae with white in between, very sinuous; white above and below hook, brown at hook. Terminal line brown. Fringes from apex to hook white with tips of both short and long scales brown; hook made of two brown tufts and white medial tuft; from hook to tornus white suffused brown. Hindwings light brown: fringes white with short scales with brown apex. Sclerotizations of male abdominal segment VIII as shown in figure 19. Coremata (Fig. 17) with thin scales as long as valva.



FIGS 1-4

Adults of *Zovax* sp. and *Mesolia* spp. (1) *Z. venus* sp. n., female paratype, Malawi, wingspan 22 mm. (2) *M. uniformella* Janse, female, Namibia, wingspan 20 mm. (3) *M. meyi* sp. n., female paratype, Namibia, wingspan 20.5 mm. (4) *M. meyi*, male paratype, Botswana, wingspan 21 mm.

MALE GENITALIA (Fig. 18): Uncus fully developed, slightly down-curved, with rounded tip. Gnathos slightly longer than uncus, up-curved, with moderately pointed tip. Tegumen subtriangular, with more strongly sclerotized margins. Juxta subtriangular. Vinculum with arms broader distally and with triangular dorsal projection. Pseudosaccus minute. Valva moderately elongated and sclerotized, with cucullus rounded; costa sclerotized, with small apical projection; saccular base bulged and lightly sclerotized. Phallus stubby; vesica with thick wall, medio-distally sclerotized and strongly wrinkled, with three medium-sized and two small cornuti.

FEMALE GENITALIA (Figs 32-33): Papillae anales subrectangular, coalescent with dorsal sclerite. Apophyses posteriores long and narrow, with bulged base. Abdominal segment VIII with subtriangular sclerotization and membranous sternite. Apophyses anteriores sclerotized, as long as apophyses posteriores. Ostium bursae cup-shaped, membranous. Ductus bursae 0.75 as long as corpus bursae, sclerotized with thick folds. Corpus bursae suboval, strongly sclerotized and with many thorns of medium length. Ductus seminalis opening in wrinkled extension of proximal third of corpus bursae.

DISTRIBUTION: Botswana, Malawi, Mozambique, Namibia, Zimbabwe.

Mesolia Ragonot, 1889

Mesolia Ragonot in Joannis & Ragonot, 1889 : 282; type species: *Mesolia pandavella* Ragonot, 1889, by original designation.

Deuterolia Dyar, 1914: 402; type species: *Deuterolia nipis* Dyar, 1914, by original designation. *Eugrotea* Fernald, 1896: 16; type species: *Eugrotea dentella* Fernald, 1896, by monotypy.

Euparolia Dyar, 1914: 402; type species: *Euparolia nipimidalis* Dyar, 1940, by original designation.

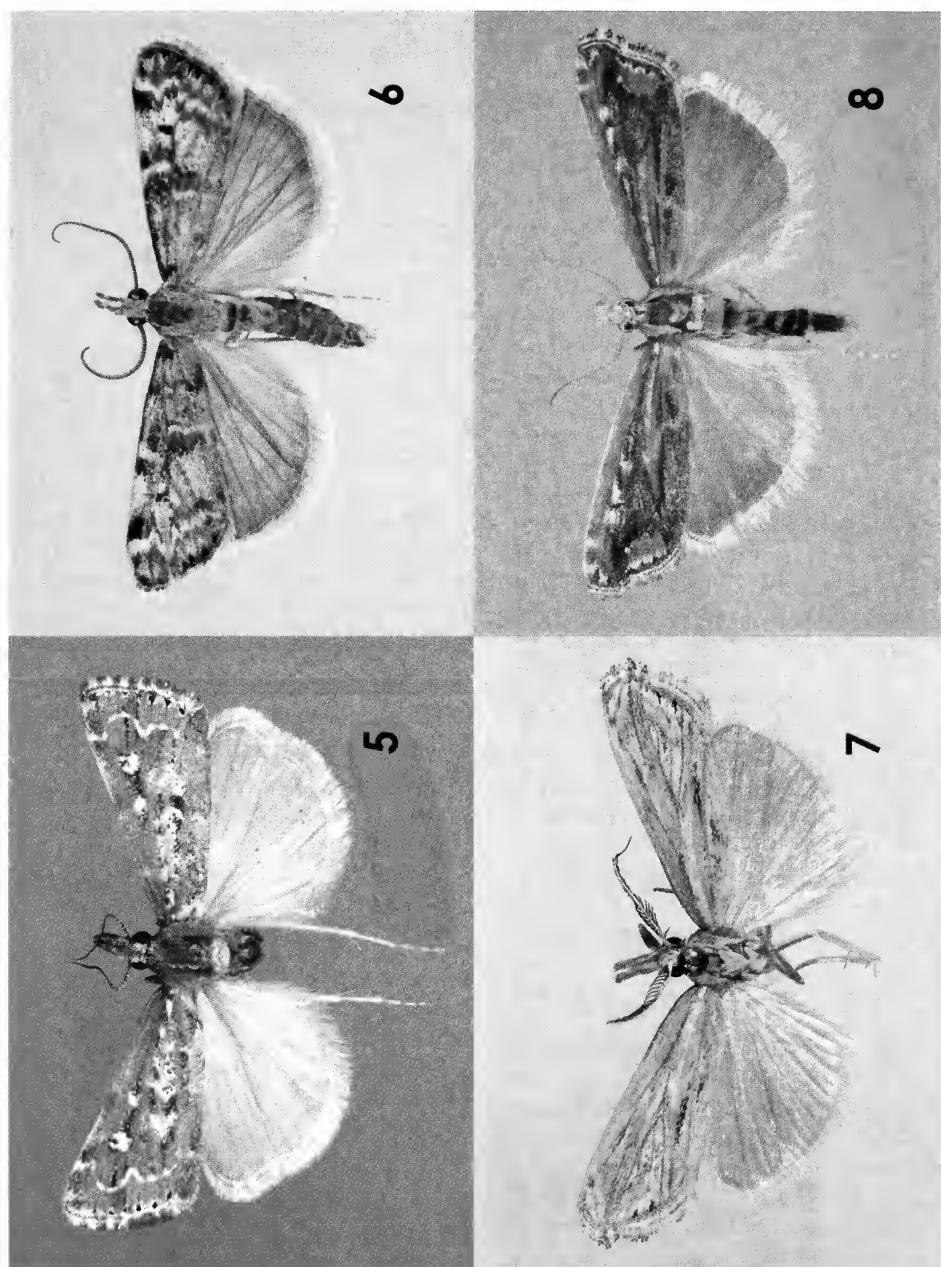
DIAGNOSIS: African species of this genus seem to be well characterized by the hooked and narrow forewings. Males always have flat and sclerotized coremata (Fig. 15), a crested uncus, a short and up-curved gnathos, and valvae without basal costal process. Female genitalia have sub-rectangular papillae, without dorsal sclerite, and a tiny sub-triangular 8th abdominal segment. Tergite of male abdominal segment VIII with strong subtriangular reinforcing sclerotization.

DIFFERENTIAL DIAGNOSIS: The most closely related genera seem to be *Talis* Guenée and *Zovax* Błeszyński. The male genitalia of *Talis* have, when present, tufty coremata (e.g. in *Talis quercella* Denis & Schiffermüller, Fig. 16), and the uncus and gnathos like those of *Mesolia*. The male genitalia of *Zovax* have well developed uncus and gnathos and coremata with thin scales. The female genitalia of *Talis* differ from those of *Mesolia* in the more triangular papillae anales, the tubular 8th abdominal segment, and the corpus bursae not separated in two sections. The female genitalia of *Zovax* are most similar to those of *Mesolia*, differing by the presence of the dorsal sclerite in the papillae anales, the apophyses posteriores basally bulged, and the corpus bursae with a moderate lateral pouch.

Mesolia meyi Bassi sp. n.

Figs 3, 4, 15, 22, 37

HOLOTYPE: 1- '♂'; 2- NAMIBIA | Popa Falls [18°07'S 21°35'E] | Okawango river | 23-24.XI.1993 | Mey & Ebert legit'; 3- 'GS-3964-GB'; 4- 'HOLOTYPE | *Mesolia meyi* Bassi'. Deposited in MFNB.



FIGS 5-8

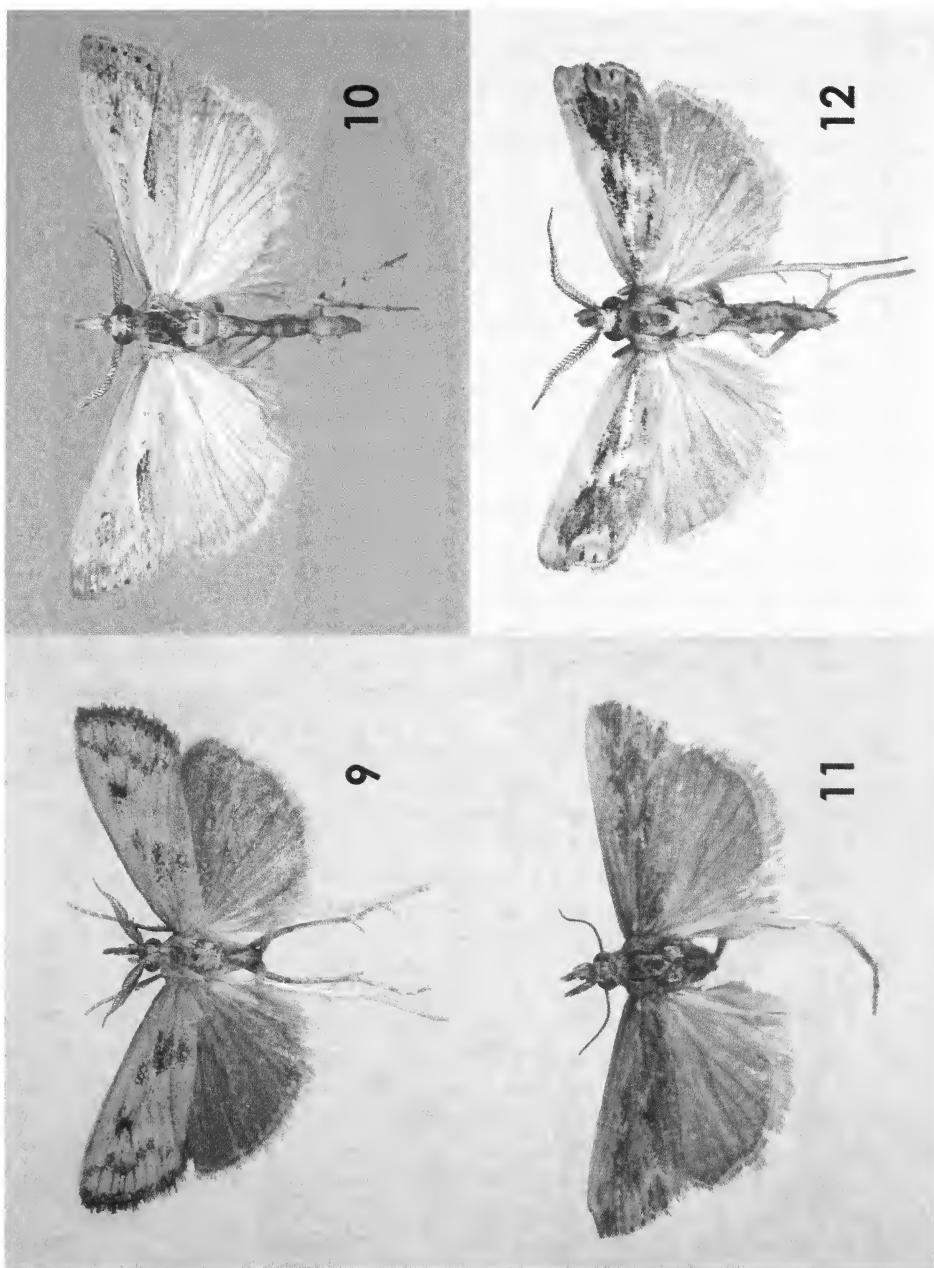
Adults of *Prionapteryx* spp. (5) *P. albimaculalis* (Hampson), female, RSA. wingspan 25 mm. (6) *P. plumbealis* (Hampson), male, Namibia, wingspan 23.5 mm. (7) *P. amathusia* Bassi & Mey, male paratype, Namibia, wingspan 23 mm. (8) *P. eberti* sp. n., female paratype, Namibia, wingspan 26 mm.

PARATYPES: BOTSWANA. – CB; 1♂; Maun, 19°56'S 23°30'E, 957 m, 1-2.XII.2010, lux, G. Bassi legit; GS 5321 GB, CB. – NAMIBIA. – MFNB, MHNG and CB; 8♂♂, 8♀♀; same data as holotype, GS 5324 GB.

ETYMOLOGY: The new species is named in honour of Wolfram Mey of the MFNB, whose field expeditions in Southern Africa greatly helped to improve our knowledge of African Lepidoptera.

DIAGNOSIS: *Mesolia meyi* flies along with *M. uniformella* Janse, 1922. The two share a similar wingspan, but the ground color of *M. meyi* is whitish black in males and dark brown in females (Figs 3, 4), compared to the uniformly brown spotted with greyish and dark brown of *M. uniformella* (Fig. 2). Male genitalia of *M. meyi* (Fig. 22) can be distinguished from those of *M. uniformella* (Fig. 23) by the longer coremata and valvae, more crested tip of the uncus and more slender cornutus. In the female genitalia *M. uniformella* (Fig. 38) can be distinguished by the asymmetrical bilobed corpus bursae.

DESCRIPTION (Figs 3-4): Wingspan: holotype 18 mm; males 17-21 mm; females 18-23 mm. Labial palpi 3 x longer than widest diameter of compound eye, white basally, blackish brown in proximal half, then with white patch and blackish tip; long scales brown. Maxillary palpi brown irrorated white and tipped with black. Frons conical, clearly produced, concave tip with irregular margin with two small teeth; white basally and brown distally in males, whitish with brown and blackish irroration in females. Male antennae serrate, ochreous brown in basal half and brown distally, with costa white. Female antennae simple, ochreous brown with costa concolorous and lightly annulated with black. Ocelli fully developed. Chaetosemata moderate. Head, patagium, tegulae, and thorax tricolored white brown and black, clearly lighter in males. Abdomen greyish white suffused brown, with first four tergites orange yellow. Legs white with tarsomeres white annulated brown; tibial spurs white, delicate. Forewings with well-defined hook; males with ground color white with dark brown and brown irroration; apex with s-shaped ochreous brown speckling and dark brown apical dot; median fascia ill-defined, black and brown; dorsally with black brown patch at 0.3; terminal line partial, brown; fringes with both short and long scales white tipped with black from apex to hook, from hook to tornus short scales white suffused pale yellow and long scales white except immediately below hook, white with black tip. Male hindwings white, distally suffused black, with terminal line near tornus black, thick; fringes with short scales pale yellow and long scales white. Female wings decidedly darker; forewings ground color brown to dark brown, with irregular whitish irrorations except for whitish costal patch at 0.7 and, below hook, whitish suffused dark brown subterminal area, with two terminal dots; dark brown apical dot always visible, as in males; fringes white and black above hook, black and golden brown at hook and golden brown and whitish below hook. Female hindwings dark brown suffused golden brown, paler basally; fringes whitish, with short scales tipped with blackish. Sclerotizations of male abdominal segment VIII as shown in figure 22. Coremata (Fig. 15) double, 0.7 length of valva, flat, with upper structure large and arched and ventral structure larger and L-shaped.



FIGS 9-12

Adults of *Prionapteryx* spp. (9) *P. triplecta* (Meyrick), male, Democratic Republic of the Congo, wingspan 24 mm. (10) *P. diaplecta* (Meyrick), male, Kenya, wingspan 20 mm. (11) *P. banaadirensis* sp. n., holotype, wingspan 21 mm. (12) *P. somala* sp. n., holotype, wingspan 16 mm.

MALE GENITALIA (Fig. 22): Uncus subcylindrical, curved; crest-like apical process broad, with few thickened setae. Gnathos 0.6 length of uncus, with pointed upturned tip. Tegumen subtriangular. Juxta cup-shaped. Pseudosaccus moderate. Valva elongated; cucullus rounded; costa more thickly sclerotized, without projections; sacculus moderately sclerotized. Phallus short, thickened; vesica with elongated cornutus at about half length of phallus.

FEMALE GENITALIA (Fig. 37): Papillae anales thin, dorsally larger. Apophyses posteriores long and sclerotized. Abdominal segment VIII with subtriangular sclerotization and membranous sternite. Apophyses anteriores 1.4 longer than apophyses posteriores, with tiny attachment to abdominal segment, subtriangular enlargement at 0.1 from base, then narrow. Ostium bursae bulged, lightly sclerotized. Ductus bursae 0.44 length of corpus bursae, moderately sclerotized. Corpus bursae bilobed; proximal sac wrinkled, with long, narrow, longitudinally oriented striae, lightly sclerotized and spiculated; distal sac delicately wrinkled, with ductus seminalis emerging at its tip.

DISTRIBUTION: Botswana, Namibia.

REMARKS: In the original description of *M. uniformella* (Janse 1922:7) the paratypes from Umvuma are all females. However, I studied a male "cotype" (1591 TMSA) with the label "Umvuma, Rhod[esia], 20.XII.[19]17, A.J.T. Janse". Thus, it seems that one of the two paratypes cited as females was in fact a male. *M. uniformella* is distributed in Botswana, Namibia, RSA, and Zimbabwe.

Mesolia alborzella Bassi sp. n.

Figs 14, 24

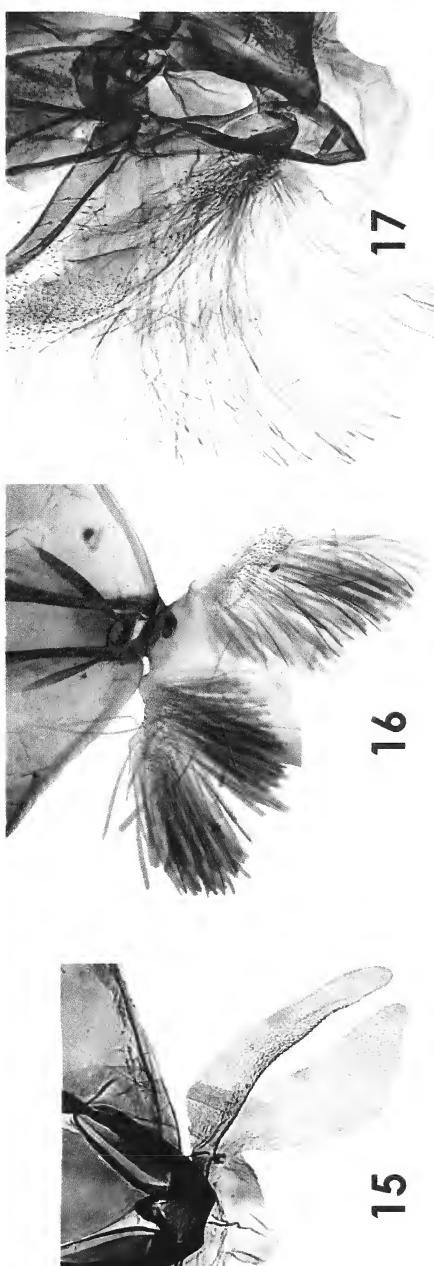
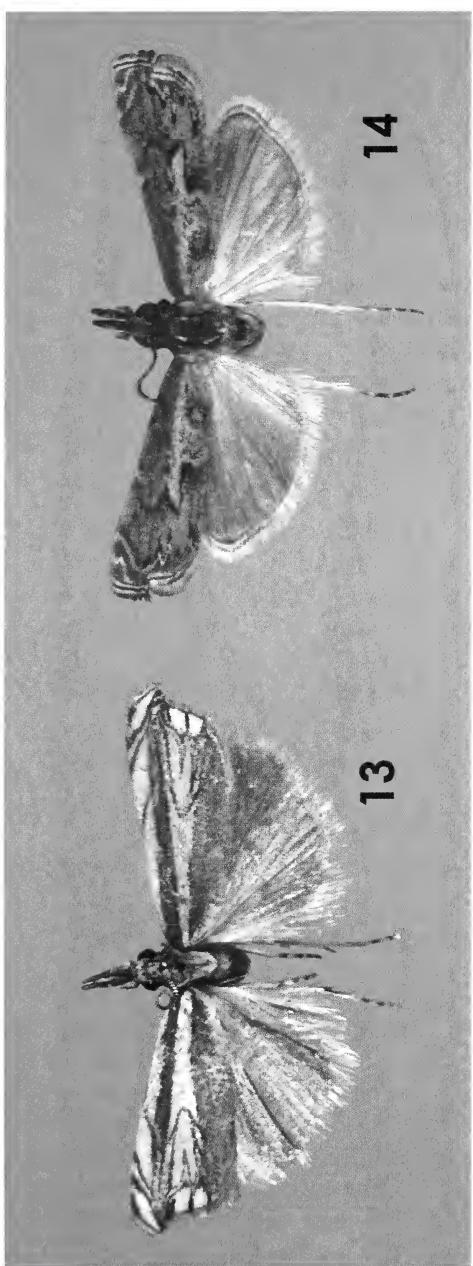
HOLOTYPE: : 1- '♂' ; 2- IRAN [36°01'N 51°30'E] | Elburs-Geb[irge] | Südseite | Shimshak | 2300 m | 1-22.VII.1970 | 50 Km Nördlich [von] Teheran | Vartian legit ' ; 3- 'GS-1278-Glaser'; 4- 'HOLOTYPE | Mesolia | alborzella Bassi'. Deposited in SMNK.

PARATYPES: SMNK and CB; 2 ♂♂; same data as holotype, GS 1279 Glaser and 5344 GB.

ETYMOLOGY: The name refers to the local name of the Elbrus mountain range.

DIAGNOSIS: As far as known *Mesolia alborzella* is the only *Mesolia* species in the Middle East. The whitish brown coloration (Fig. 14) is very characteristic. In males the single paired coremata are broader than in *M. uniformella* and the cornutus is more slender (Fig. 24) than that of its congeners.

DESCRIPTION (Fig. 14): Wingspan: holotype 19 mm; paratypes 20 mm. Labial palpi 2.2 x longer than widest diameter of compound eye, brown sprinkled with lighter scales; inner surface light brown. Maxillary palpi brown with lighter tip; inner surface light brown. Frons subconical, brown, clearly produced, with apical corneous point. Antennae deeply serrate, brown with costa white, narrowly annulated with black. Ocelli well-developed. Chaetosemata moderate. Head, patagium and thorax brown speckled grey brown. Tegulae brown, distally lighter. Fore and mid-legs brown with tarsomeres annulated with white; hindlegs whitish with tarsomeres brown annulated with white. Forewings ground color brown; costal line white, then brown from 0.85 to apex; apex moderately rounded; hook well defined, marked with white fringes; costal area brown sprinkled white; dorsal area brown with large rounded dot basally at 0.2, creamy white bordered dark brown; medial fascia dark brown, very sinuous; post-



FIGS 13-17

Prionapterygini spp., adults and coremata. (13) *Prionapteryx helena* sp. n., holotype, wingspan 17 mm. (14) *Mesolia alborzella* sp. n., holotype, wingspan 19 mm. (15) *M. meyi* sp. n., coremata. (16) *Talis querella* (Denis & Schiffermüller), coremata. (17) *Zovax venus* sp. n., coremata.

medial fascia dark brown and white, very sinuous; apical fascia white; medial stripe well defined, creamy white, ending under cell in median fascia; fringes from apex to hook white with short scales tipped with dark brown and long scales tipped with light brown; just below hook basally white, distally light brown and then whitish suffused light brown with short scales tipped with dark brown. Hindwings brown with intense white suffusion; fringes white, with short scales tipped with brown. Sclerotizations of male abdominal segment VIII as shown in figure 24. Coremata a single paired, spatulate and broad sub-oval structure.

MALE GENITALIA (Fig. 24): Uncus narrow, sclerotized, down-curved, with rounded tip; well-developed crest-like dorso-distal process with strong setae. Gnathos with pointed and up-curved tip. Tegumen subtriangular with dorsal margin more strongly sclerotized. Vinculum narrow, with two slightly produced dorso-distal projections. Pseudosaccus moderate, subconical. Juxta subtriangular. Valvae suboval with costal margin more strongly sclerotized, moderate saccular membranous expansion and apically blunt cucullus. Phallus 0.74 as long as valva; vesica with one thin cornutus almost as long as phallus.

FEMALE: Unknown.

DISTRIBUTION: The new species is only known from the type locality in Iran.

Prionapteryx Stephens, 1834

Prionapteryx Stephens, 1834: 316; type species: *Prionapteryx nebulifera* Stephens, 1834, by monotypy.

Alloea Turner, 1947: 37; type species: *Alloea xylochroa* Turner, 1947, by monotypy.

Calarina Walker, 1866 b: 1769, 1770; type species: *Calarina albirenella* Walker, 1866, by monotypy.

Hypotomorpha Rebel, 1892: 252-253; type species: *Hypotomorpha lancerotella* Rebel, 1892, by original designation.

Loxophantis Meyrick, 1935: 570; type species: *Loxophantis triplecta* Meyrick, 1935, by monotypy. **Syn. n.**

Nuarace Walker, 1863: 188; type species: *Nuarace eugraphis* Walker, 1863, by monotypy.

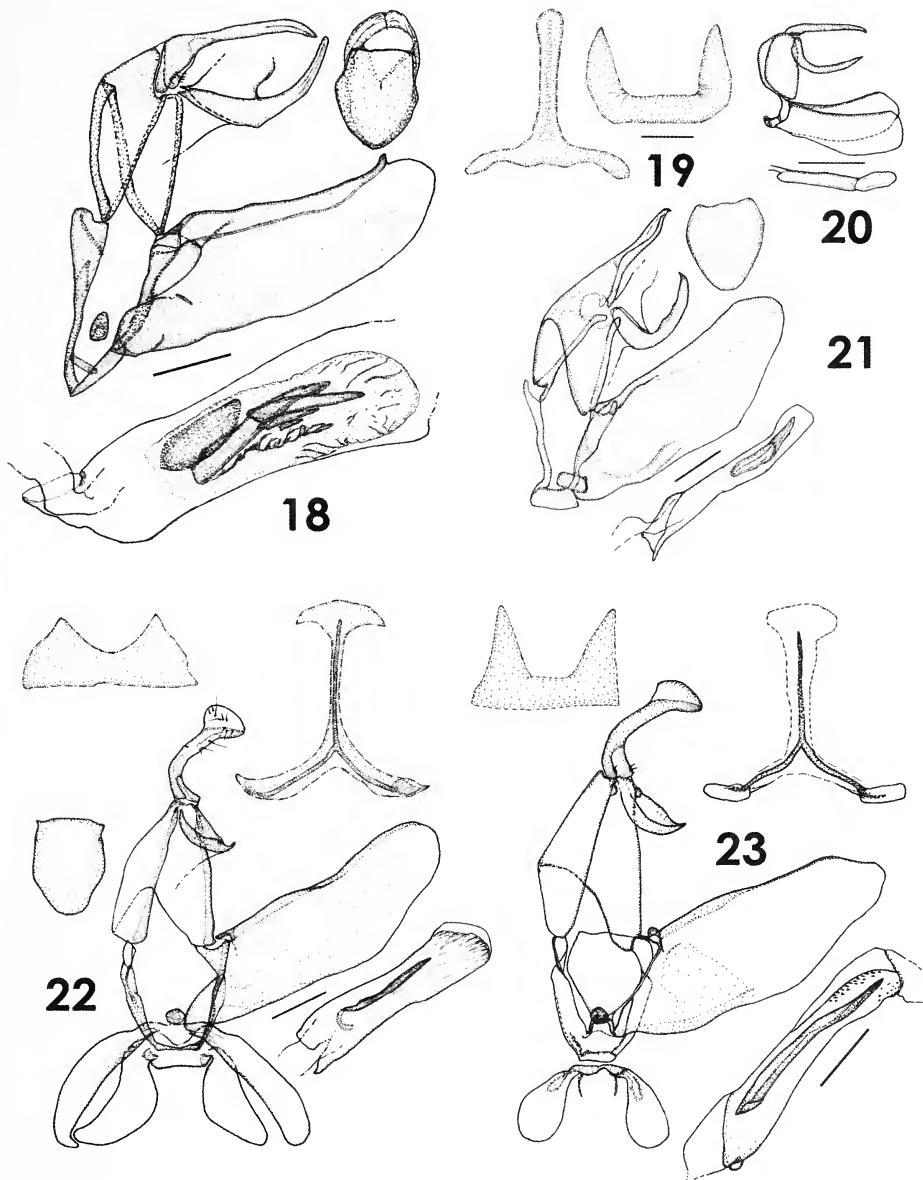
Pindicitora Walker, 1863: 134; type species: *Pindicitora thysbesalis* Walker, 1863, by subsequent designation.

Platytesia Strand, 1918: 255; type species: *Platytes alikangiella* Strand, 1918, by monotypy.

DIAGNOSIS: *Prionapteryx* differs from *Mesolia* and *Zovax* in the male genitalia with a basal costal process on the valva and without coremata. The basal costal process is shared with *Surattha*, but the latter differs in having a strongly arched uncus and the phallus with a pointed tip. The female genitalia can be distinguished from those of *Mesolia*, *Zovax* and *Surattha* by the triangular papillae anales, the long, tubular 8th abdominal segment and by the very strongly developed intersegmental membranes between abdominal segments VII and VIII and abdominal segments VIII and IX.

REMARKS: The genus *Prionapteryx* includes 57 species (Nuss *et al.*, 2012) since Błeszyński (1967: 92) synonymized in this genus a number of genera. Some of these species have to be returned to *Surattha* Walker since this name was revised as valid by Bassi & Mey (2011: 234).

On the other hand, *Loxophantis* has to be considered as a junior synonym of *Prionapteryx* as shown by the study of both external features and genitalia of the type species.



FIGS 18-23

Prionapterygini spp., male genitalia and sclerotizations of abdominal segment VIII, scale bar 0.5 mm. (18) *Zovax venus* sp. n., paratype GS 5350 GB. (19) *Z. venus* sp. n., paratype GS 5338 GB. (20) *Z. whiteheadii* Wollaston, lectotype. (21) *Z. vangoghi* Błeszyński, paratype 4360 GB, ZSM. (22) *Mesolia meyi* sp. n., holotype; phallus and juxta from paratype 5321 GB. (23) *M. uniformella* Janse, paratype, Umvuma, 20.XII.1917, AJT Janse legit, type TMSA 1591, GS 3065 GB.

Prionapteryx triplecta (Meyrick, 1935), comb. n.

Figs 9, 27, 42, 43

Loxophantis triplecta Meyrick, 1935: 570.

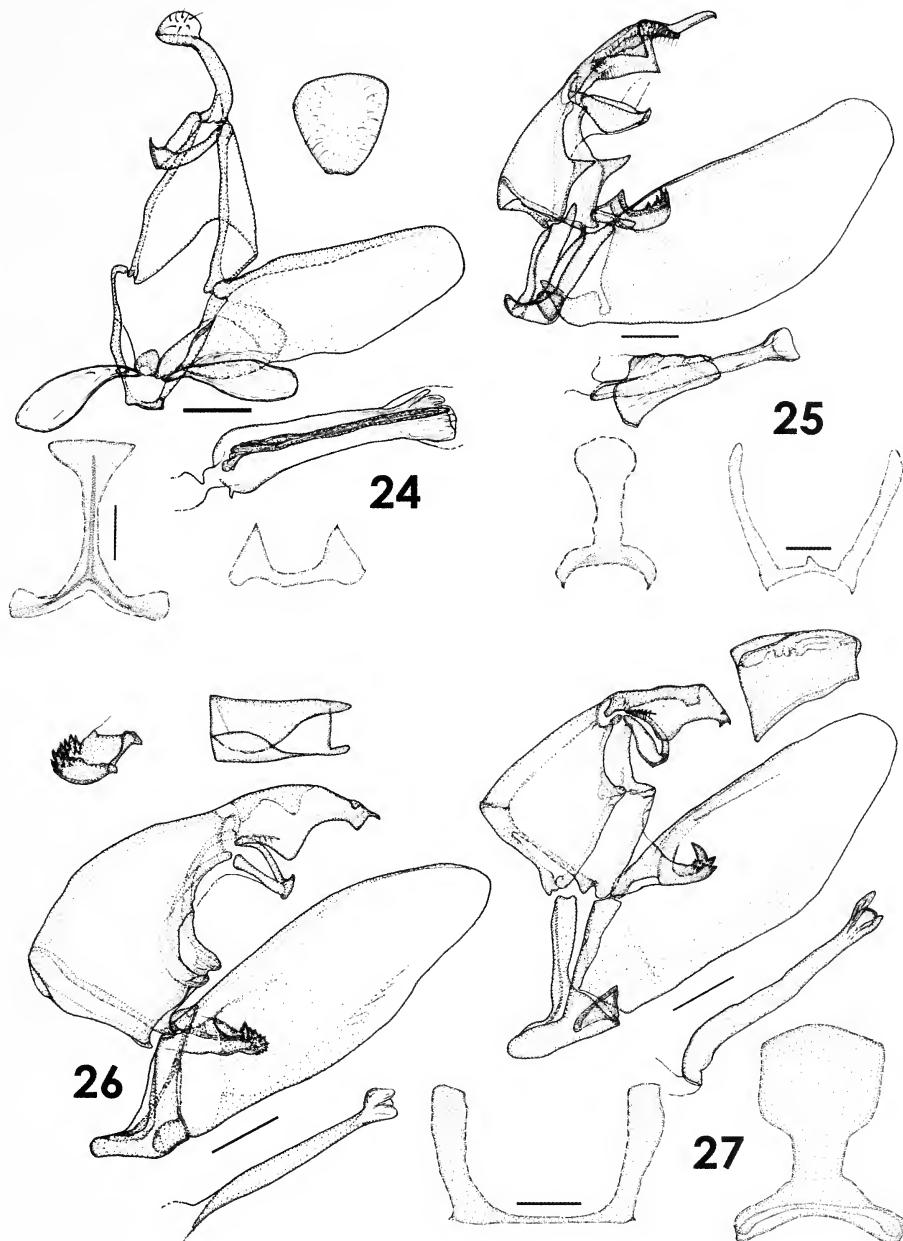
MATERIAL EXAMINED: Holotype; RMCA; ♂; [DEMOCRATIC REPUBLIC OF THE CONGO, Haut-Katanga, Lubumbashi, 11°40'S 27°28'E] Elisabethville, XII.1933, Ch. Seydel legit, GS 4189 SB. – RMCA; 2♀ ♀; Elisabethville, 31.X.[19]34 and 27.XII.1937, Ch. Seydel legit, GS 4190 SB and 5407 GB. – MHNG; 2♂ ♂; Ht. Katanga, Tsinkolobwe, 3.X.[19]31, J. Romieux legit, GS 5367 GB.

DIAGNOSIS: *Prionapteryx triplecta* (Fig. 9) is most similar to *P. diaplecta* (Meyrick) (Fig. 10) in facies but the ground color of *P. triplecta* is yellow brown compared to paler yellow brown with a well-defined medial yellow stripe dorso-distally bordered with an elongated dark brown patch in *P. diaplecta*. The male genitalia of *P. triplecta* (Fig. 27) are closest to those of *P. diaplecta* (Fig. 26) but the triple tips of the uncus are smaller, the tegumen is basally broader, and the valvae and juxta are stockier. The female genitalia (Figs 42, 43) are distinguished by the cup-shaped ostium bursae and the papillae's dorsal sclerite with rounded tip compared to the pointed and produced sclerite of *P. diaplecta* (Fig. 44).

REDESCRIPTION (Fig. 9): Wingspan 22-27 mm. Labial palpi 3 x longer than widest diameter of compound eye, yellowish sprinkled with brown and white. Maxillary palpi yellowish with brown irroration. Frons subconical, yellowish, clearly produced, with apical corneous point. Antennae strongly bipectinate, with long black rami, and costa greyish brown annulated with black and brown. Ocelli and chaetosemata fully developed. Head, patagia, tegulae and thorax yellow. Abdomen with basal four tergites yellow suffused with orange, then brown suffused with yellow; anal tuft yellow. Forelegs greyish brown with tarsomeres annulated white; mid- and hindlegs yellowish white with inner surface greyish, with tarsomeres lightly annulated dark brown. Forewings ground color pale yellow; apex rounded; hook absent; costal line light brown; basally, at 0.3, with three brown spots in middle of wing; distal end of cell with rounded brown spot; postmedial fascia brown, sinuous; subterminal area yellow with venation marked with brown; 8 tiny blackish terminal dots; fringes bronze brown. Hindwings brown with yellow suffusion; fringes whitish with short scales brown. Female darker, with brown fascia in forewings larger. Sclerotizations of male abdominal segment VIII as shown in figure 27.

MALE GENITALIA (Fig. 27): Uncus 1.8 x longer than gnathos, slightly down-curved, basally with broad and rounded extensions; patch of setae proximally placed before extensions; tip tri-hooked. Tegumen broadly rectangular, with ventral teeth moderately pointed. Vinculum with lateral arms and dorsal extension broadly pointed. Juxta strongly sclerotized, subconical, 0.38 x as long as valva. Valva with rounded cucullus; costa and sacculus sclerotized; basal costal process well-developed with one large tooth and some small teeth in distal third dorsally. Phallus 0.6 x as long as valva, proximally sinuous, with tip ventrally and dorsally moderately sclerotized and slightly produced.

FEMALE GENITALIA (Figs 42-43): Papillae anales subtriangular, almost fused dorsally, ventrally membranous and with dorsal sclerite clearly produced, with rounded tip; setae mainly normally developed. Apophyses posteriores long, basally with plate-



FIGS 24-27

Prionapterygini spp., male genitalia and sclerotizations of abdominal segment VIII, scale bar 0.5 mm. (24) *Mesolia alborzella* sp. n., paratype GS 1279 Glaser; sclerotizations abdominal segment VIII from paratype GS 5344 GB. (25) *Prionapteryx eberti* sp. n., holotype. (26) *P. diaplecta* (Meyrick), Kenya, GS 1225 GB, juxta ventral view. (27) *P. triplecta* (Meyrick), Democratic Republic of the Congo, GS 5367 GB, juxta lateral view.

like sclerite reaching sternum. Abdominal segment VIII as long as apophyses anteriores, subconical, ventrally membranous. Apophyses anteriores 0.6 x as long as apophyses posteriores. Ostium bursae cup shaped, membranous. Corpus bursae membranous, 1.22 x as long as apophyses anteriores. Ductus seminalis opening in proximal third of corpus bursae. Abdominal segment VII with sclerotized sternite in front of ostium bursae.

DISTRIBUTION: *P. triplex* is only known from South Eastern Democratic Republic of the Congo; *P. diaplecta* is known from Burundi (type locality: [Burundi, Bujumbura, 03°23'S 29°22'E] Ruanda, Usumbura) and Kenya.

***Prionapteryx banaadirensis* Bassi sp. n.**

Figs 11, 41

HOLOTYPE: 1- '♀'; 2- 'SOMALIA | Benadir | Mogadiscio | 7° Km [02°02'N 45°21'E] | 2-19.V.1986 | R. Mouriglia legit'; 3- 'GS 5230-GB'; 4- 'Coll. Bassi n° 396'; 5 - 'HOLOTYPE | *Prionapteryx* | *banaadirensis* Bassi'. Deposited in CB.

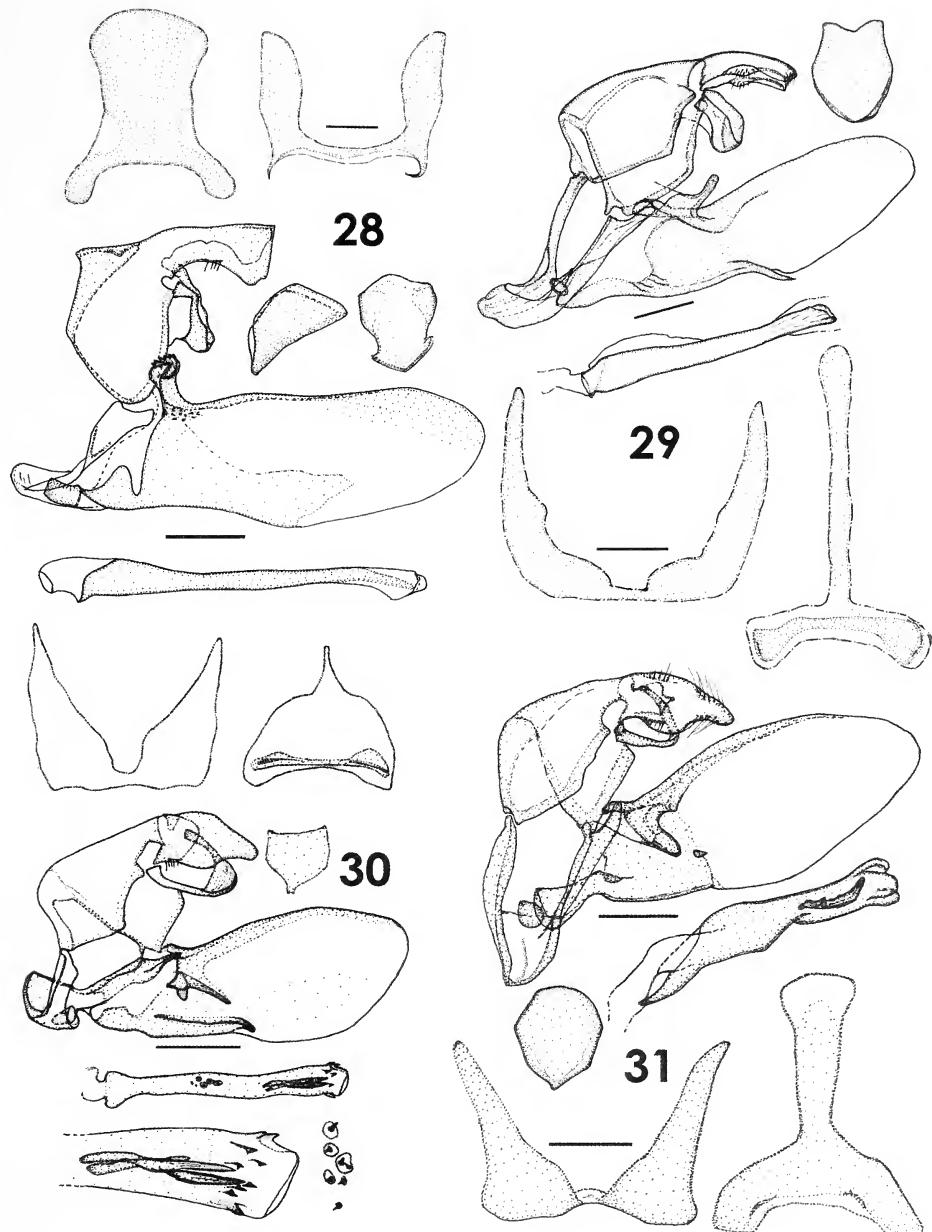
ETYMOLOGY: The name refers to the Somali name (Banaadir) of the Mogadiscio Region, type locality of the species.

DIAGNOSIS: *Prionapteryx banaadirensis* (Fig. 11) is superficially similar to *P. diaplecta* (Fig. 10), but the forewing ground color is dull brown in the former and yellow grey brown in the latter. The female genitalia (Fig. 41) differ from those of *P. diaplecta* (Fig. 44) in the more pointed dorsal sclerite of the papillae anales and in the slightly shorter and stoker 8th abdominal segment with tergal distal margin produced.

DESCRIPTION (Fig. 11): Wingspan 21 mm. Labial palpi 3 x as long as widest diameter of eye, white at base, yellow brown medially, grey brown distally. Maxillary palpi half as long as labial palpi, greyish brown with yellow brown basis. Frons subconical, clearly produced, yellow brown with a well-developed apical corneous point. Antennae simple, brown. Ocelli well developed. Chaetosemata moderate. Head brown, whitish laterally and in middle. Patagium, tegulae and thorax with scales brown with lighter bases. Forewings ground color dull brown; apex rounded; hook absent; costal area yellow brown; otherwise with brown scales with darker apices; with one dorso-basal, one median, and one cellular dark brown and yellow brown spots; medial stripe short, yellow, ending before cell in median spot; subterminal area broad, yellow, with six terminal dots between veins. Hindwings brown, medially whitish brown; fringes with both short and long scales yellowish with brown apices. Legs brown with tarsomeres moderately annulated creamy brown; tibial spurs delicate, greyish brown.

MALE GENITALIA: Unknown.

FEMALE GENITALIA (Fig. 41): Papillae anales subtriangular, not fused dorsally, ventrally membranous, with dorsal sclerite strong, pointed and produced; setae mainly fine and of moderate length developed. Apophyses posteriores long, basally with plate-like sclerite expanded ventrally. Abdominal segment VIII as long as apophyses anteriores, sclerotized, with tergal proximal margin broadly bilobed and distal margin produced; membranous area of sternite broad. Apophyses anteriores sclerotized, 0.82 length of apophyses posteriores. Ostium bursae slightly subconical, membranous. Ductus bursae reduced, lightly sclerotized in proximal third laterally. Corpus bursae suboval, delicately wrinkled. Ductus seminalis opening in proximal third of corpus bursae.



FIGS 28-31

Prionapteryx spp., male genitalia and sclerotizations of abdominal segment VIII, scale bar 0.5 mm. (28) *P. albimaculalis* (Hampson), RSA, Pretoria, 22.XI.1914, AJT Janse legit, GS 3067, type 1592 TMSA *Prosmixis albipicta* Janse nomen nudum; juxta ventral view, RSA, GS 3111 GB; juxta lateral view and sclerotizations abdominal segment VIII, Namibia, GS 5384 GB. (29) *P. plumbealis* (Hampson), Namibia, GS 5274 GB. (30) *P. helena* sp. n., paratype GS 3379 GB. (31) *P. somala* sp. n., paratype 5224 GB.

DISTRIBUTION: The new species is only known from the type locality in Somalia.

***Prionapteryx albimaculalis* (Hampson, 1919)**

Figs 5, 28, 45

Prosmixis albimaculalis Hampson, 1919: 148.

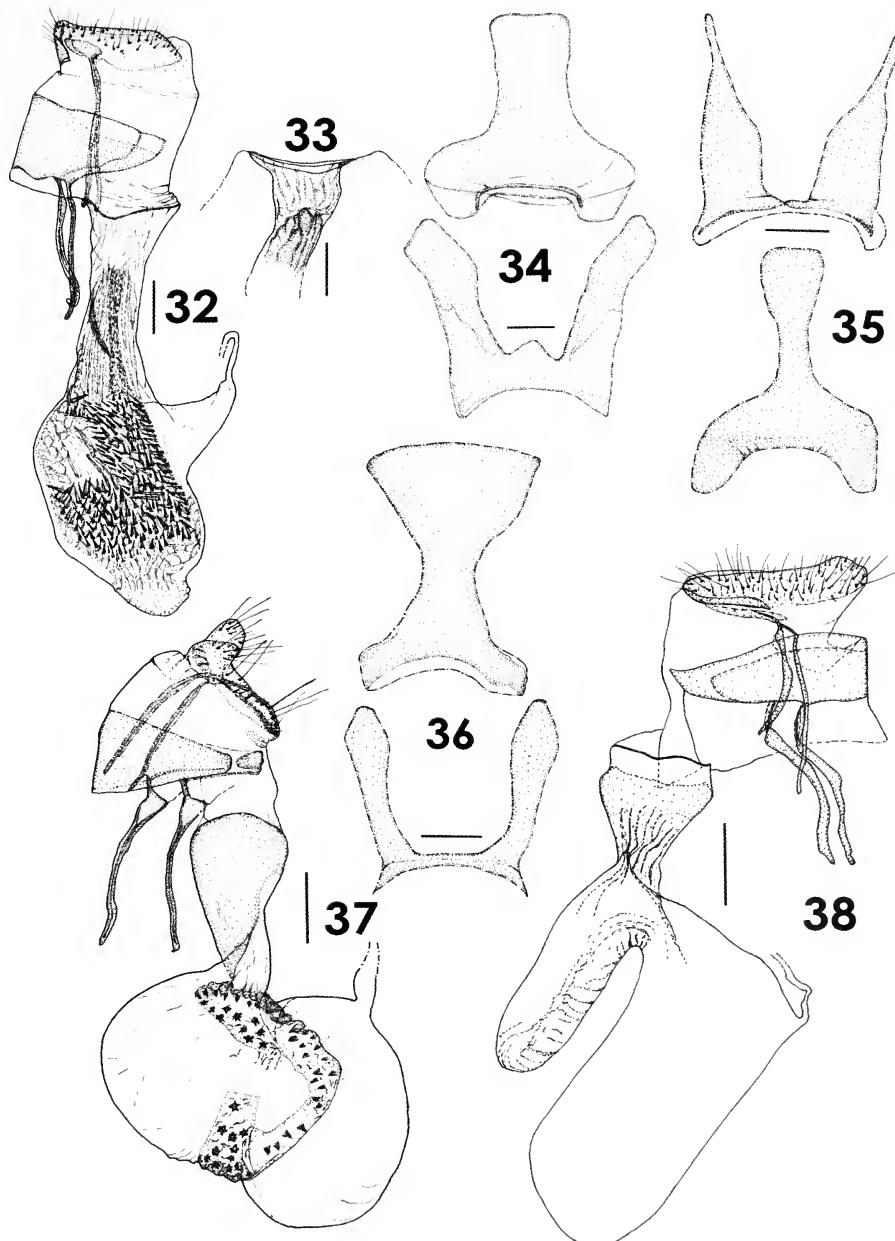
Loxophantis pretoriella Błeszyński, 1970: 21. Syn. n.

Prosmixis albipicta Janse, nomen nudum.

MATERIAL EXAMINED: NAMIBIA. – CB; 3♀♀; Waterberg National Park, 10.IV.2009, lux, G. Bassi legit; GS 5158 GB. – CB; 1♀; about 50 km. N. Grootfontein, Roy's Rest Camp, 1226 m, 05.XII.2010, lux, 19°14'S 18°30'E, G. Bassi legit. – MFNB; 1♀; Popa Falls, Okavango river, 23.24.XI.1993, Mey & Ebert legit; GS 3897 GB. – MFNB; 1♀; Exp[edition] MFNB 1992, Kavango, Kavdoni Camp, 18°31' S 20°43' E, lux, 22-25.II.92, W. Mey legit. – MFNB; 1♂, Sandveld, 60 Km. N. Gobabis, 22-26.I.2007, LF, Mey & Ebert legit, GS 5387 GB. RSA. – BMNH; 1♀; (Holotype of *P. albimaculalis*); Enkeld [not traced, ?Dunkeld, Gauteng, 26°08'S 28°03'E], 12.I.[19]07 - Transvaal 1907-249 - *Talis albimaculalis* Type ♀ H[a]mps[on] - GS 7113 BM. – TMSA; 1♂; Pretoria, 22.II.1914, A.J.T. Janse legit; Type 1592; GS 3067 GB and 1♀; Pretoria, 16.III.[19]15, A.J.T. Janse legit; Type 1593; GS 3066 GB (manuscript types of *albipicta*). – BMNH; 1♂ (holotype of *pretoriella*); Pretoria, 9.I.[19]13, A. J. T. Janse legit; 1919-17; BM Slide 7593. – BMNH; 3♂♂ 3♀♀ (paratypes of *pretoriella*); Pretoria, XII, I and II; 1911-1913. – TMSA; 1♀; (T[rans]v[aa]l), Nylstroom, 4.5.III.1954, AJT Janse legit; GS 3301 GB. – CB; 1♂, Manzi, 16.VIII.1985, B. Balinsky legit, GS 3111 GB. – CB; 1♀; Limpopo, dint. Nylstroom, Abba Game Lodge, 16-17.III.1999, 1350 m, lux, G. Bassi legit. – ZIMBABWE. – BMNH; 1♀ (paratype of *pretoriella*); Rhodesia, Sawmills, 4.II.1918, A.J.T. Janse legit.

DIAGNOSIS: *Prionapteryx albimaculalis* (Fig. 5) is most similar in facies to *P. plumbealis* (Hampson), but the ground color of *P. albimaculalis* is darker and without the well-defined medial fascia in the forewings present in *P. plumbealis* (Fig. 6). The male genitalia are close to those of *P. plumbealis* (Fig. 29), particularly with regard to the blunt uncus tip, but the male genitalia of *P. albimaculalis* (Fig. 28) are distinct in possessing a simple sacculus compared to the well-developed saccular process of *P. plumbealis*. In the female genitalia (Fig. 45) the corpus bursae is membranous as opposed to strongly sclerotized in *P. plumbealis* (Fig. 46).

REDESCRIPTION (Fig. 5): Wingspan: males 18-23 mm, females 22-26 mm. Labial palpi 3.5 x longer than widest diameter of compound eye, greyish white to brownish white. Maxillary palpi greyish brown to chestnut brown, always spotted white. Frons subconical, clearly produced with small apical corneous point, greyish to brownish, always spotted white. Antennae bipectinate with long blackish rami in males, thickened in females, with antennomeres annulated with greyish brown to black Ocelli and chaetosemata well developed. Head greyish brown, spotted white. Patagium brown, spotted white. Tegulae brown. Thorax white, medially brown. Abdomen pale greyish brown, with first tergite dirty white and second tergite orange yellowish. Legs white, spotted brown; tarsomeres white, lightly annulated with black tibial spurs moderately long. Forewings ground color variable from spotted white, black, yellow, brown and grey to uniformly yellowish and greyish brown; common characters are costal area greyish brown with costal line with some white; white dot in cell; medial stripe yellowish, ending under cell; subterminal area ill-defined, but with inner margin white; 7 black terminal dots; terminal line silvery grey (when present); fringes white with tips of both short and long scales silvery, to bronze brown, to spotted white and silvery grey. Hindwings light brown to yellowish grey; fringes white with short scales



FIGS 32-38

Prionapterygini spp., female genitalia and sclerotizations of abdominal segment VIII, scale bar 0.5 mm. (32) *Zovax venus* sp. n., paratype GS 3540 GB. (33) *Z. venus* sp. n., paratype GS 5310 GB. (34) *Surattha luteola* Bassi & Mey, paratype GS 5192 GB. (35) *Prionapteryx splendida* Bassi & Mey, paratype GS 5204 GB. (36) *P. amathusia* Bassi & Mey, paratype GS 5196 GB. (37) *Mesolia meyi* sp. n., paratype GS 5324 GB. (38) *M. uniformella* Janse, holotype, Umvuma, XII.1918, Carnegie legit, type 1590 TMSA, GS 3015 GB.

yellowish with brown tip. Sclerotizations of male abdominal segment VIII as shown in figure 28.

MALE GENITALIA (Fig. 28): Uncus slightly longer than gnathos, with truncated apex, ventrally curved and with row of setae mid-ventrally. Gnathos ring shaped. Tegumen broad, subtriangular, with more strongly sclerotized margins. Vinculum with arms broader distally and dorsal projection moderately long with rounded tip. Pseudosaccus well developed, subrectangular. Juxta ring shaped, with ventral up-curved tip. Valva elongated, with broadly rounded cucullus; costal margin more strongly sclerotized till two thirds of length; basal costal process narrow, with row of small teeth at tip; sacculus simple, moderately sclerotized. Phallus 0.84 x as long as valva, narrow and moderately sclerotized.

FEMALE GENITALIA (Fig. 45): Papillae anales subtriangular, almost fused dorsally, ventrally membranous and with dorsal sclerite narrow; setae mainly short and strong dorsally and mainly fine and of moderate length ventrally. Apophyses posteriores long and narrow. Abdominal segment VIII 0.71 length of apophyses posteriores, with tergal proximal border slightly biconcave; ventrally membranous. Apophyses anteriores 1.2 x length of apophyses posteriores. Ostium bursae subconical, membranous. Ductus bursae 0.53 as long as corpus bursae, moderately sclerotized in proximal third; entering corpus bursae laterally at about 0.25 of its length. Corpus bursae sub-oval, wrinkled above ductus bursae insertion. Ductus seminalis opening in proximal third of corpus bursae, under ductus bursae insertion.

DISTRIBUTION: *P. albimaculalis* is known from Namibia, RSA and Zimbabwe; *P. plumbealis* is known from Namibia and Zimbabwe (type locality: Mashonaland).

Prionapteryx helena Bassi sp. n.

Figs 13, 30, 47

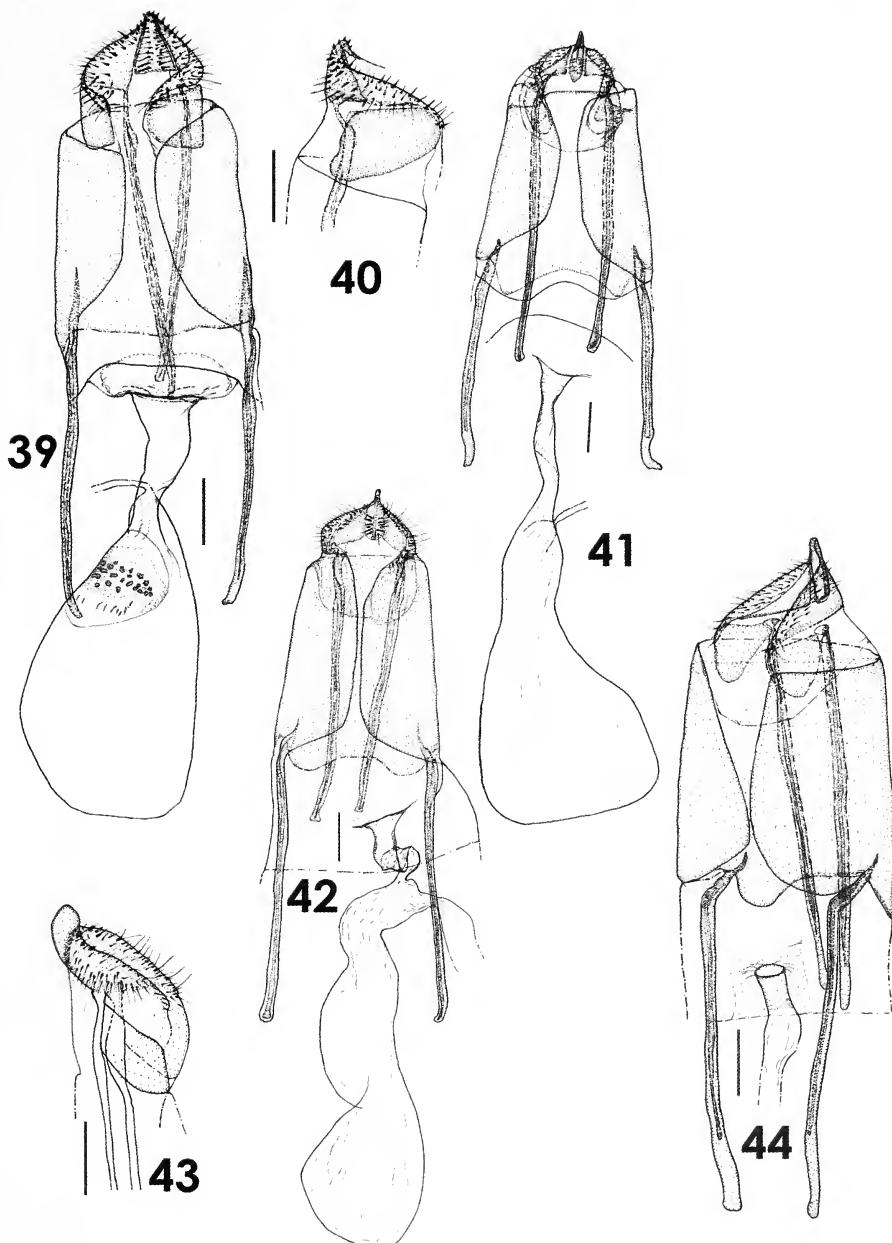
HOLOTYPE: 1- ‘♂’; 2- [NAMIBIA, 18°35’S, 20°34’E] Omuramba | Tamsu | Okavango | S[outh] W[est] A[frica] | 14.II.1956 | de Winter & Marais legit’ ; 3 - ‘GS-3450-GB’ ; 4- ‘HOLOTYPE | *Prionapteryx* | *helena* Bassi’. Deposited in TMSA.

PARATYPES: NAMIBIA. – TMSA and CB; 3♂ ♂, 1♀; same data as holotype, GS 3379, 5150 and 5342 GB.

ETYMOLOGY: The name refers to a Latin woman’s name.

DIAGNOSIS: Superficially (Fig. 13), *Prionapteryx helena* is easy to distinguish from its congeners by virtue of its white and brown ground color and the forewings apex strongly hooked. The male genitalia of *P. helena* (Fig. 30) are closest to those of *P. somala* n. sp. (Fig. 31) described below, but the tegumen is basally smaller, the valvae more broadly rounded apically, the basal costal process smaller, the phallus slenderer, with small apical teeth, and the vesica with some small and medium sized cornuti. The female genitalia (Figs 47, 48) are distinguished by the different shape of the papillae anales and 8th abdominal segment, longer ductus bursae, and membranous corpus bursae.

DESCRIPTION (Fig. 13): Wingspan: holotype 17 mm, paratypes: males 17.5 mm, female 19 mm. Labial palpi 4 x longer than widest diameter of eye, chestnut brown, basally white and with paler brown band medially. Maxillary palpi brown with paler



FIGS 39-44

Prionapteryx spp., female genitalia, scale bar 0.5 mm. (39) *P. eberti* sp. n., paratype GS 5322 GB. (40) *P. eberti* sp. n., paratype GS 5386 GB. (41) *P. banaadirensis* sp. n., holotype. (42) *P. triplecta* (Meyrick), Democratic Republic of the Congo, GS 5407 GB. (43) *P. triplecta* (Meyrick), Democratic Republic of the Congo, GS 4190 SB. (44) *P. diaplecta* (Meyrick), Kenya, GS 1225 GB.

medial band. Frons subconical, clearly produced, white with scattered brown scales. Antennae bipectinate in male, with very short black rami; simple and brown in female; in both sexes with costa brown annulated white. Ocelli well developed. Chaetosemata moderately developed. Head white with scattered brown scales. Patagium laterally brown, medially white. Tegulae tricolored white, creamy brown, and brown. Thorax white, laterally brown. Abdomen sandy yellow with paler anal tuft. Legs dirty white to light brown, with tarsomeres white annulated brown; tibial spurs small, bronze brown. Forewing ground color light brown with most brown scales paler basally; apex white with small apical brown dot; hook well defined; costa white with a median and two subterminal curved brown bands; midwing stripe thin, brown, reaching termen at hook; medial stripe white with some brown lines distally; subterminal area separated into two white blotches by midwing stripe; brown at tornus, white with two elongated black dots below hook, white at apex; terminal line ochreous brown; fringes from apex to hook white with tips of both short and long scales brown, at hook two brown tufts with a white tuft medially, from hook to tornus white suffused brown. Hindwings light yellow brown; fringes white in third close to tornus, then white suffused yellow. Sclerotizations of male abdominal segment VIII as shown in figure 30.

MALE GENITALIA (Fig. 30): Uncus broad, with rounded apex. Gnathos broadly rounded, 0.75 x length of uncus. Tegumen broad, subtriangular. Vinculum narrow with moderate subtriangular dorsal extension. Juxta cup shaped. Pseudosaccus minute. Valva elongated, with rounded cucullus and costal margin more strongly sclerotized; basal costal process with small finger like thorn bent inward; saccular process moderate, slightly bent inward. Phallus 0.75 length of valva, swollen at base, with row of small subapical teeth; vesica with swarm of minute cornuti with rounded base and three medium sized subtriangular cornuti in distal third.

FEMALE GENITALIA (Fig. 47). Papillae anales subtriangular, fused dorsally, ventrally membranous and with dorsal sclerite narrow; setae mainly short and strong. Apophyses posteriores very long and narrow. Abdominal segment VIII strongly developed, sclerotized, with tergal proximal margin straight; sternite wrinkled, with membranous area reduced. Apophyses anteriores slightly longer than apophyses posteriores. Ostium bursae bulbous, wrinkled and moderately sclerotized. Ductus bursae as long as corpus bursae, proximally wrinkled and lightly sclerotized, then membranous and wrinkled. Corpus bursae suboval and delicately wrinkled. Ductus seminalis opening in proximal third of corpus bursae.

DISTRIBUTION: The new species is only known from the type locality in Namibia.

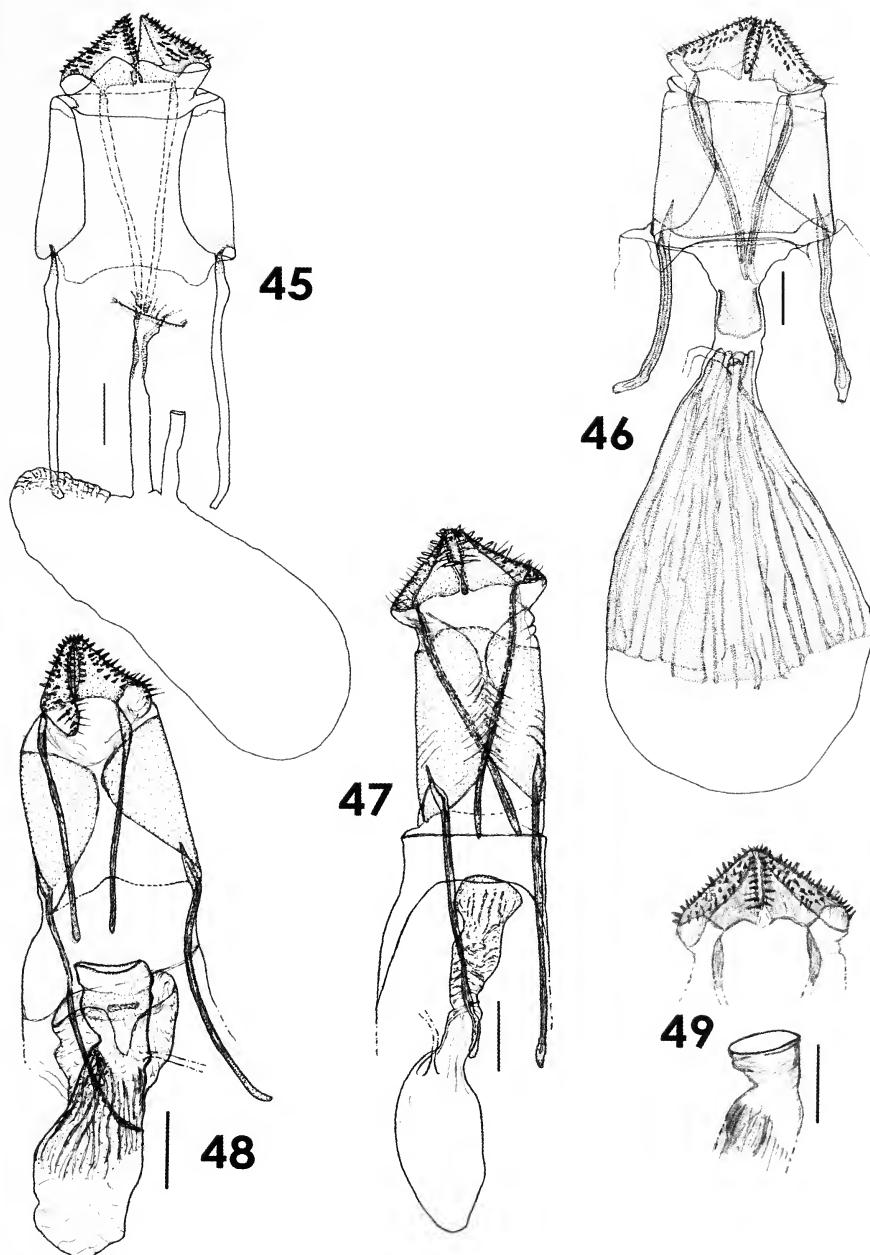
***Prionapteryx somala* Bassi sp. n.**

Figs 12, 31, 48, 49

HOLOTYPE: 1- ‘♂’; 2- ‘SOMALIA | Mogadiscio | 7° Km [02°02'N 45°21'E] | 22.IV-5.V.1986 | R. Mourglia legit’; 3- ‘Coll. Bassi n° 408’; 4 - ‘HOLOTYPE | *Prionapteryx somala* Bassi’. Deposited in MHNG (not dissected).

PARATYPES: CB, MHNG and MFNB; 6♂♂, 5♀♀, same data as holotype; GS 1014, 1015, 1122, 1123, 1213, 1239, 5224 GB.

ETYMOLOGY: The name refers to the country where type series was collected.



FIGS 45-49

Prionapteryx spp., female genitalia, scale bar 0.5 mm. (45) *P. albimaculalis* (Hampson), RSA, Pretoria, 16.III.1915, AJT Janse legit, Type 1593 TMSA *Prosmixis albipicta* Janse nomen nudum, GS 3066 GB. (46) *P. plumbealis* (Hampson), Zimbabwe, GS 5152 GB. (47) *P. helena* sp. n., paratype GS 5342 GB. (48) *P. somala* sp. n., paratype GS 1123 GB. (49) *P. somala* sp. n., paratype GS 1014 GB.

DIAGNOSIS: Superficially, *Prionapteryx somala* (Fig. 12) is easily distinguished from its congeners by its small size and yellowish brown forewing ground color. The male genitalia of *P. somala* (Fig. 31) are closest to those of *P. helena* n. sp. described above (Fig. 30), but the tegumen is basally larger, the valvae are more elongate, the basal costal process is larger, and the phallus is medially bulged with a single strong cornutus in the vesica. The female genitalia (Figs 48, 49) are distinguished by the different shape of the papillae anales and 8th abdominal segment, shorter ductus bursae, and basally sclerotized corpus bursae.

DESCRIPTION (Fig. 12): Wingspan: holotype 16 mm, males 14-16 mm, females 18-20 mm. Labial palpi 3.5 x longer than widest diameter of eye, brown with dirty white base and short scales brown with paler bases. Maxillary palpi concolorous with labial palpi. Frons subconical, clearly produced, sandy yellow brown with small apical corneous point. Antennae bipectinate with well-developed black rami and costa greyish brown in males, simple and brown in females. Ocelli and chaetosemata well developed. Head creamy brown. Patagium medially creamy brown, laterally brown. Tegulae and thorax brown mixed with lighter scales. Abdomen sandy yellow with first tergite dirty white. Legs pale yellow, with tarsomeres lightly annulated brown; tibial spurs delicate, pale yellow. Forewings ground color sandy yellow with median area brown to greyish brown; hook moderate, marked with dark brown scales; costal area broad, sandy yellow; dorsal area concolorous, thin; median fascia broad, yellow, sometimes with distal margin brown; medial stripe short, ill-defined, white, ending in median fascia; subterminal area broad, sandy yellow with six blackish terminal dots between veins; fringes with short scales white with blackish apex, more contrasted in apical area, and long scales whitish with bronze brown apex in apical area, then uniformly bronze brown. Hindwings yellowish brown; fringes with short scales pale yellow and long scales dirty white. Sclerotizations of male abdominal segment VIII as shown in figure 31.

MALE GENITALIA (Fig. 31): Uncus 2.2 x as long as gnathos, slightly down curved, with rounded tip, with basal lateral rounded extensions and two lateral rows of setae, the apical more strongly developed. Gnathos rounded. Tegumen broad, subrectangular, with sclerotized margins. Juxta plate like. Vinculum with arms straight and narrow, with only a moderate lateral extension lightly sclerotized; base concave, thin, slightly projecting dorsally. Pseudosaccus small and subtriangular. Valvae elongate, with costa convex and sclerotized up to 2/3; costal process broad, finger like; proximal third of valva more strongly sclerotized and basally bulged; harpe with minute medio-distal tooth. Phallus 0.65 length of valva, medially bulged, with apex tri-lamellate; vesica with one strong and up-curved cornutus.

FEMALE GENITALIA (Figs 48, 49): Papillae anales subtriangular, semi-fused dorsally, ventrally membranous, with dorsal sclerite thickened and spiny; setae mainly short and strong. Apophyses posteriores long and narrow. Abdominal segment VIII sclerotized, 0.6 x as long as apophyses posteriores, with tergal basal margin medially concave and distal margin moderately produced; membranous area of sternite narrow. Apophyses anteriores sclerotized, 1.2 x as long as apophyses posteriores. Ostium bursae lightly sclerotized, slightly bulged. Ductus bursae reduced to 0.21 length of

corpus bursae, lightly sclerotized. Corpus bursae suboval, basally lightly scobinate, basal 0.6 wrinkled and sclerotized, distally membranous and wrinkled; cottony basal expansion surrounding almost whole of ductus bursae. Ductus seminalis opening in proximal third of corpus bursae.

DISTRIBUTION: The new species is only known from the type locality in Somalia.

ADDITIONS AND CORRECTIONS TO BASSI & MEY (2011)

Some errors and inaccuracies were made in this work and they are discussed here.

Surattha Walker, 1863

Surattha Walker, 1863; type species: *Surattha invectalis* Walker, 1863: 76, by monotypy.

DIAGNOSIS: Superficially, *Surattha* is similar to many other Prionapterygini genera, sharing such characters as light ground color with darker spotting and fasciae. However, general aspect is stocky, the labial palpi short, the ocelli poorly developed, the forewing distal hook always absent. The male genitalia (Bassi & Mey, 2011: 225, figs 238, 260, 290-292) are very homogeneous, with a tubular and strongly curved uncus, with pointed tip; a stout gnathos, often with spoon-like tip; broad valvae, always with basal costal process; a simple sacculus; and the phallus with pointed tip, often with small external teeth and without cornuti. The female genitalia are clearly distinctive (Bassi & Mey, 2011: 238, Fig. 293) with relatively short and broad papillae anales basally ringed with long and delicate hair-like setae, a narrow 8th abdominal segment with a strong tergite and generally narrower sternite, and a membranous and delicate wrinkled corpus bursae. *Surattha* is most similar to *Prionapteryx*, but the latter differs in having the phallus without a pointed tip in the male genitalia, and the female genitalia with triangular papillae anales, longer apophyses, and the 8th abdominal segment very long and tubular. *Mesolia* and *Zovax* differ from *Surattha* in having valvae without basal costal process.

The species still placed in *Prionapteryx* that I studied and that should be regarded as *Surattha* are as follows:

- Surattha albipunctella* Marion, 1957: 1207 comb. rev.
- Surattha albostigmata* W. Rothschild, 1921: 221 comb. rev.
- Surattha amselella* Błeszyński, 1965a: 442 comb. rev.
- Surattha carmensita* Błeszyński, 1970: 21 comb. rev.
- Surattha diffusilinea* Hampson, 1919: 138 comb. rev.
- Surattha margherita* Błeszyński, 1965a: 442 comb. rev.
- Surattha nigrifascialis* (Walker, 1866a: 1472) comb. rev.
- Surattha obeliscota* Meyrick, 1936: 21 comb. rev.
- Surattha rufistrigalis* Fawcett, 1918: 247 comb. rev.
- Surattha soudanensis* Hampson, 1919: 68 comb. rev.
- Surattha strioliger* W. Rothschild, 1913: 135 comb. rev.

Surattha luteola Bassi & Mey, 2011

Fig. 34

Surattha luteola Bassi & Mey, 2011: 234, 236, figs 260-262, 290-292, pl. 36, fig. 3.

HOLOTYPE: CB; ♀; Namibia, Usakos, Amieb Farm, 1000 m, 17.II.1999, GS 5169 GB, G. Bassi legit; Coll. Bassi 29237.

PARATYPES: as in the original description.

ETYMOLOGY: This name is derived from luteolus-a (Latin), dirty yellow, referring to the ground color of the forewings of this species.

ADDITIONS TO ORIGINAL DESCRIPTION: Sclerotizations of male abdominal segment VIII as shown in figure 34.

REMARKS: The above represents the correct holotype data and etymology.

***Prionapteryx splendida* Bassi & Mey, 2011**

Fig. 35

Prionapteryx splendida Bassi & Mey, 2011: 236, 237, figs 287-289, pl. 36, fig. 6.

HOLOTYPE: TMSA; ♂; [RSA, Eastern Cape] Gamtoos, C[ape] P[rovince], 29.X.1949, C.G.C. Dickson legit; GS 3475 GB.

PARATYPES: RSA. – MFNB; 3♂♂; [Western Cape, Cape Peninsula] Prom[onturii] B[ona] Sp[es], Grimm legit; GS 5204 GB. – MFNB; 1♂; Western Cape, Cape Peninsula, Table Mountain N. P., headquarter, 17-19.XI.2008, K. Ebert, W. Mey & L. Kühne legit. – TMSA and CB; 3♂♂, Blue Downs nr. Faure, C.P., 17.XII.42, C.G.C. Dickson legit; GS 5211 GB. – TMSA; 1♂; Zoetendals Valley, C.P., X.40, G. van Son legit. – TMSA; 2♂♂; Port Elisabeth, XI.1951 e 26.XI.1949, C.G.C. Dickson legit. – TMSA; 2♂♂; Strandfontein, C[ape] P[rovince], 6.I.1961, C.G.C. Dickson legit. – TMSA and CB; 6♂♂; De Hoop, C.P., Breddsdorp Dist., 1-3.XI.1967, Vári & Potgieter legit. – TMSA; 1♂; Wilderness, 1.2.XII.1951, C.G.C. Dickson legit.

ADDITIONS TO ORIGINAL DESCRIPTION: Sclerotizations of male abdominal segment VIII as shown in figure 35.

REMARKS: The above represents the correct type series. All of the specimens of the type series are males. The female of this species is unknown.

***Prionapteryx amathusia* Bassi & Mey, 2011**

Figs 7, 36

Prionapteryx amathusia Bassi & Mey, 2011: 237, Figs 284, 285, Pl. 36, fig. 15.

HOLOTYPE: BMNH; ♂; Namibia, Sissekap, NW of Otavi, 1300 m, 11.XI.1933, leg. K. Jordan; genitalia slide 5733 BMNH.

PARATYPES: [all from NAMIBIA]. – BMNH; 14♂♂, 3♀♀, Bellerode, 27 km E of Windhoek, 1800 m., 17-22.X.1933, K. Jordan legit, genitalia slide 5743 BMNH. – BMNH; 4♂♂, 10♀♀; Hoffnung, E. of Windhoek, 1850 m, 9.X.1933, K. Jordan legit. – BMNH; 4♂♂; Hoffnung, E. of Windhoek, 1850 m, 24.X.1933, K. Jordan legit. – MFNB, MNMW and CB; 1♂, 2♀♀; Namib-Naukluft N.P., Tsams-Ost, 3.XII.2008, W. Mey, K. Ebert & L. Kühne legit; GS 5196 and 5209 GB.

DIAGNOSIS: The specimen illustrated in Bassi & Mey (plate 36, fig. 15) is not a *P. amathusia* but the holotype of *P. eberti* sp. n. described below. Males of *P. amathusia* (Fig. 7) differ from those of *P. eberti* (Fig. 8) in having more strongly developed rami of the antennae. In addition, the forewings have a poorly defined coloration, the hook is very evident, there is no well-defined subterminal area, and there are only three black subterminal dots, all below the hook. In male genitalia *P. amathusia* (Bassi & Mey, 2011: fig. 284) has the uncus with double lateral processes, elongate valvae with a basal costal process with many small teeth, a longer phallus, and the tegumen simple. Female genitalia (Bassi & Mey, 2011: fig. 285) have a more strongly sclerotized ductus bursae and the proximal sclerotized patch elongated and somewhat spiny as opposed to a membranous ductus bursae and rounded patch in *P. eberti* (Figs 39, 40).

ADDITIONS TO ORIGINAL DESCRIPTION (Fig. 7): Antennae in males with long rami. Wingspan in females up to 30 mm. Forewings with rounded apex and pale light

brown to greyish brown ground color; costal margin basally brown, then greyish white; pale yellow areas in proximal half and in cell; two brown bands at apex; three well-developed drop-like dots, all below hook; terminal line yellow, thick; fringes with short scales brown and long scales bronze, whitish and brown at hook. Hindwings yellowish brown; fringes yellowish white. Abdomen sandy brown. Sclerotizations of male abdominal segment VIII as shown in figure 36.

REMARKS: The above represents the correct type series. The best genitalia slide in BMNH is n° 5743, a male paratype from Bellerode near Windhoek. Unfortunately, the holotype's genitalia are mounted on a slightly damaged slide.

***Prionapteryx eberti* Bassi & Mey sp. n.**

Figs 8, 25, 39, 40

HOLOTYPE: 1- '♂'; 2- [NAMIBIA] Sandveld [Conservancy] | 60 Km. N. Gobabis | 22-26.I.2007 | LF | Mey & Ebert legit'; 3- 'GS-5360-GB'; 4- 'HOLOTYPE | *Prionapteryx eberti* Bassi'. Deposited in MFNB.

PARATYPES [all from NAMIBIA]. – MFNB; 3 ♀♀; same data as holotype. – MFNB; 1 ♀; Namibia-Exp[edition] ZMB 1992, Bushmanland, Klein Dobe, 19°25'S 20°21'E, lux, 19-21.II.1992, W. Mey legit; GS 5389 GB. – CB; 1 ♀; Auas Mts, Krumhuk, 1850 m, 24.I.2009, LF, W. Mey legit; GS 5385 GB. – CB; 1 ♀; Popa Falls, 1000 m, lux, 24-25.XI.2010, Mahangu Campsite, G. Bassi legit, GS 5322 GB.

ETYMOLOGY: The new species is named in honour of Konrad Ebert of the MFNB, co-collector of large series of Lepidoptera during the MFNB expeditions in Southern Africa.

DIAGNOSIS: *P. eberti* (Fig. 8) differs from *P. amathusia* (Fig. 7) in having a well-defined yellow and greyish brown forewing coloration and short rami in male antennae. In male genitalia (Fig. 25) the uncus is more distinctly curved, with strong tip and broad lateral process, the phallus is shorter, and the juxta is well sclerotized, even dorsally. In female genitalia (Figs 39, 40) the ductus bursae is membranous and on the corpus bursae the proximal patch is rounded.

DESCRIPTION (Fig. 8): Wingspan: male 23 mm, females 24-28 mm. Labial and maxillary palpi 3 x as long as widest diameter of eye, greyish brown. Antennae bipectinate in males, simple in females; rami in males brown and moderately developed, costa bronze brown, silver bordered. Frons clearly produced, ending in corneous tooth, greyish brown. Ocelli small. Chaetosemata brown. Patagium medially white, brown laterally. Tegulae yellow with distal margins pale yellow. Thorax laterally brown, medially white. Abdomen dorsally brown on first four segments, then greyish yellow. Forewings ground color yellow to greyish brown; hook present but without tufty scales; costal line grey; costal area yellow, including cell; median and dorsal areas grey with dark brown scales except for a yellow stripe, distally bordered dark brown, reaching midwing below cell; subterminal area with inner side yellow and medial fascia white reaching apex, with 5 ill-defined black dots inside, and terminal line broad, grey; fringes with row of shorter scales grey till hook, then paler, with base white and row of longer scales greyish with paler bases, but tricolored around tornus, with pale greyish medially. Hindwings ivory yellow with greyish brown suffusion; fringes pure white with short scales ivory yellow. Sclerotizations of male abdominal segment VIII as shown in figure 25.

MALE GENITALIA (Fig. 25): Uncus 1.7 x length of gnathos, slightly down-curved proximally, then strongly curved dorsally and notched ventrally at 0.7; tip subcylindrical and hooked; patch of setae mid-ventrally placed; mid-lateral extensions broad and subtriangular. Gnathos short, well sclerotized and with up-curved tip. Tegumen subtriangular, with strong and pointed proximal pointed projection. Vinculum with lateral arms thin; sternal projection moderate and pointed. Pseudosaccus suboval, medium sized. Juxta subconical. Valva broad, proximally slightly concave, with costal margin more strongly sclerotized; basal costal process strongly sclerotized, with five pointed teeth; sacculus sclerotized except for membranous proximal edge; cucullus with ventral margin and apex broadly rounded. Phallus 0.75 x as long as valva, simple, with tip ventrally and dorsally moderately sclerotized and slightly bulged.

FEMALE GENITALIA (Fig. 39, 40): Papillae anales almost fused dorsally, ventrally membranous and with dorsal sclerite triangular; setae fine and of moderate length except for some short and strong. Apophyses posteriores long, basally with plate-like sclerite reaching sternum. Abdominal segment VIII strongly developed and sclerotized, with tergal proximal border straight. Apophyses anteriores as long as apophyses posteriores. Ostium bursae broad, suboval and membranous. Ductus bursae tubular, membranous, half as long as corpus bursae. Corpus bursae suboval, with broad sclerotized patch in proximal third. Ductus seminalis opening in extension of proximal third of corpus bursae, opposite sclerotized patch.

DISTRIBUTION: Namibia.

Glaucocharis maculosa Bassi & Mey, 2011

Glaucocharis maculosa Bassi & Mey, 2011: 241, 242, figs 294-296, pl. 37 fig. 1.

HOLOTYPE: TMSA; ♂: [RSA] Buffelspoort, 15.XII.[19]24, A.J.T. Janse legit; (not dissected).

PARATYPES: – NAMIBIA. – CB; 1♀; Abachaus, S[outh] W[est] A[frica], Jan[uary] [19]’45, G. Hobohm legit; GS 4023 GB. – MFNB and CB; 6♂♂, 3♀♀, Otavi Mts., 21.II.2007, J. Deckert legit, GS 5189 and 5199 GB. – MFNB; 4♂♂, 10♀♀; Waterberg N. P., Okatjikona, LF, 14-18.II.2008, W. Mey legit. – MFNB; 1♀; Namibia, Outjo, 4.II.2009, W. Mey legit. – RSA. – TMSA; 1♂; same label of the holotype. – TMSA and CB; 1♂, 2♀♀, Pretoria, 10.X. [19]’17, 14.X.’16 and 9.2. [19]’13, A.J.T. Janse legit. – CB; 1♂, 1♀; Modderpoort, 18.XII. [19]’24, A.J.T. Janse legit; GS 3660 GB. – TMSA; 1♀; Nylstroom, 21.XII.25, A.J.T. Janse legit; GS 4075 GB. – TMSA; 1♀; Pret.[oria] North, 24.X.1924, C. J. Swiestra legit.

ETYMOLOGY: The name was derived from *maculosus-a* (Latin), spotted, referring to the coloration of the forewings of this species.

REMARKS: This is the correct type series and etymology.

Crambus proteus Bassi & Mey, 2011

Crambus proteus Bassi & Mey, 2011: 242, figs 297-299, pl. 36, fig. 8.

HOLOTYPE: TMSA; ♂; [RSA, Western Cape] Knysna, C[ape] P[rovince], Garden of Eden, 16-20.I.1955, A. J. T. Janse legit (not dissected).

PARATYPES: RSA, Western Cape. – CB; 1♂, 2♀♀; same data as holotype. – SAM; 2♀♀; Cape Town, Table Mt., II.1919, K. Barnard legit. – TMSA; 3♂♂, 3♀♀; Cape Town, III.1912, Lord Gladstone legit. – TMSA and CB; 1♂, 2♀♀; Cape Town, IV.1912, Lord

Gladstone legit; GS 3757 GB. – TMSA; 1♂; Swellendam, 9.III.1980, Scoble & Kroon legit; GS 3578 GB. – TMSA; 1♂; Hogsback (32°27' CA), 24-25.II.1978, M. J. Scoble legit. – TMSA; 8♀♀; Deepwalls For. Res. nr Knysna, 17-21.II.1978, M. J. Scoble legit. – TMSA; 1♂; Tokai, 11.III.1956, CGC. Dickson legit; GS 3771 GB. – CB; 1♀; Kogelberg, Nature Reserve, 14-21.III.1983, Kroon & Molekane legit; GS 3753 GB. – MFNB and CB; 11♂♂, 5♀♀; Stellenbosch, Assegabosch N.R., 25.III.2009, LF, W. Mey legit; GS 5193 and 5210 GB. – RSA, Eastern Cape. – Kroon Collection; 1♀; Zingcuka Forest, Mt. Fletcher Dist., 28.XI.1976, D.M. Kroon legit.

REMARKS: This is the correct type series. *Crambus proteus* has two closely related species (Bassi, 2012): *C. attis* Bassi and *C. rossinii* Bassi. They are characterized by their similar external appearance and genitalia of both sexes, *C. proteus* usually differing in the more ochreous tinge of the dark scales in forewings, in male genitalia the gnathos is only slightly longer than the uncus, the tegumen is S-shaped, the costal process of the valva is stronger and longer, the tip of the phallus is longer, and in female genitalia the lateral processes of the sterigma are pointed as opposed to rounded in *C. attis* and elongate in *C. rossinii*.

ACKNOWLEDGEMENTS

I wish to thank all of those who, by loans and gifts of material and often for their precious advice, have helped me to increase my knowledge on the Crambinae: K. Tuck and M. Shaffer (†), BMNH; Dr. A. Hausmann, ZSM; Dr. B. Landry, MHNG; Dr. M. Krüger, TMSA; Dr. W. Mey, MFNB; Dr. U. Dall'Asta and Dr. J. de Prins, RMCA; Dr. R. Trusch, SMNK; Dr. W. de Prins, Leefdaal, Belgium; Dr. P. Ustjuzhanin, Novosibirsk, Russia. Particular thanks are due to Dr. B. Landry, MHNG for revising the English text and for his really friendly help during these last years. More special thanks are due to Mr. K. Tuck, BMNH for without his help this work would not have been possible.

REFERENCES

BASSI, G. 2012. New Afrotropical species of the genus *Crambus* Fabricius, 1798 (Lepidoptera: Pyralidae, Crambinae). *Revue suisse de Zoologie, Genève* 119 (3): 269-286.

BASSI, G. & MEY, W. 2011. Crambidae Crambinae (Lepidoptera, Pyraloidea). In: MEY W., Basic pattern of Lepidoptera diversity in southwestern Africa. *Esperiana Memoir* 6: 234-243.

BŁĘSZYŃSKI, S. 1962. Studies on the Crambidae (Lepidoptera). Part XXXVI. On some species of the genus *Chilo* Zincken. *Acta Zoologica Cracoviensis* 7(7): 107-133.

BŁĘSZYŃSKI, S. 1965a. Crambinae. Pp. 1-553, pls. 1-133. In: AMSEL, H. G., F. GREGOR & H. REISSER, *Microlepidoptera Palaearctica* 1 (1-2). Georg Fromme & Co., Wien.

BŁĘSZYŃSKI, S. 1965b. Studies on the Crambinae. Part 42. The Crambinae from Sudan collected by R. Remane in 1962. *Opuscula Zoologica, München* 86: 1-8.

BŁĘSZYŃSKI, S. 1967. Studies on the Crambinae (Lepidoptera). Part 44. New Neotropical genera and species. Preliminary check-list of Neotropical Crambinae. *Acta Zoologica Cracoviensis* 12 (5): 39-110.

BŁĘSZYŃSKI, S. 1970. New genera and species of tropical Crambinae (Studies on the Crambinae, Lepidoptera, Pyralidae, Part 48). *Tijdschrift voor Entomologie* 113: 1-26.

DYAR, H. G. 1914. Descriptions of new species and genera of Lepidoptera from Mexico. *Proceedings of the United States National Museum, Washington* 47 (2054): 365-409.

FAWCETT, J. M. 1918. Notes on a collection of Heterocera made by Mr. W. Feather in British East Africa, 1911-13. *Proceedings of the General Meetings for Scientific Business of the Zoological Society of London* 1917 (17): 233-250.

FERNALD, C. H. 1896. The Crambidae of North America. *Massachusetts Agricultural College*. 1-93, pls. a-c, pls. I-VI.

JANSE, A. J. T. 1922. Some apparently new South African genera and species of the family Pyralidae. *Transactions of the Entomological Society of London* 1922: 1-33.

JOANNIS, J. DE & E.-L. RAGONOT 1889. Descriptions de genres nouveaux et espèces nouvelles de Lépidoptères. *Annales de la Société Entomologique de France, Paris* (ser. 6) 8: 271-284.

KLOTS, A. B. 1970. Lepidoptera. In: TUXEN S.L. (ed.), Taxonomist's glossary of genitalia in insects (2nd Edition): 115-130. *Munksgaard, Copenhagen*.

HAMPSON, G. F. 1919. Descriptions of new Pyralidae of the subfamilies Crambinae and Siginae. *Annals and Magazine of Natural History, including Zoology, Botany and Geology, London* (ser. 9) 4: 53-68, 137-154, 305-326.

LANDRY, B. 1995. A phylogenetic analysis of the major lineages of the Crambinae and of the genera of Crambini of North America (Lepidoptera Pyralidae). *Memoirs on Entomology, International, Gainesville*. Vol. 1. 245 pp.

MARION, H. 1957. Pyrales nouvelles d'Afrique tropicale. *Bulletin de l'Institut Français d'Afrique Noire, Série A: Sciences Naturelles, Dakar* 19: 1197-1215, pl. 1.

MEYRICK, E. 1930-1936. Exotic Microlepidoptera. *Taylor and Francis, London*. 1-642.

ROBINSON, G. S. 1976. The preparation of slides of lepidoptera genitalia with special reference to the Microlepidoptera. *Entomologist's Gazette* 27: 127-132.

NUSS, M., LANDRY, B., VEGLIANTE, F., TRÄNKNER, A., MALLY, R., HAYDEN, J., SEGERER, A., LI, H., SCHOUTEN, R., SOLIS, M. A., TROFIMOVA, T., DE PRINS, J. & SPEIDEL, W. 2003-2012. Global Information System on Pyraloidea. – www.pyraloidea.org.

REBEL, H. 1892. Beitrag zur Mikrolepidopterenfauna des kanarischen Archipels. *Annalen des naturhistorischen Hofmuseums, Vienna* 7: 241-284, pl. 17.

ROBINSON, G. S. 1976. The preparation of slides of lepidoptera genitalia with special reference to the Microlepidoptera. *Entomologist's Gazette* 27: 127-132.

ROTHSCHILD, L. W. 1913. Expedition to the central western Sahara by Ernst Hartert. VII. Lepidoptera. *Novitates Zoologicae, London* 20: 109-143.

ROTHSCHILD, L. W. 1921. Captain Angus Buchanan's Air expedition. V. On the Lepidoptera collected by Captain A. Buchanan in northern Nigeria and the southern Sahara in 1919-1920. *Novitates Zoologicae, London* 28: 142-170, 215-229.

STEPHENS, J. F. 1834. Illustrations of British Entomology; or, a synopsis of indigenous insects: containing their generic and specific distinctions; with an account of their metamorphoses, times of appearance, localities, food, and economy, as far as practicable. *Baldwin and Cradock, London*. 1-433.

STRAND, E. 1918. H. Sauter's Formosa-Ausbeute: Pyralidae, Subfam. Galleriinae, Crambinae, Schoenobiinae, Anerastiinae und Phycitinae. *Stettiner Entomologische Zeitung* 79 (2): 248-276.

TURNER, A. J. 1947. A revision of the Australian Phycitidae. Part I. *Transactions of the Royal Society South Australia, Adelaide* 71: 28-53.

WALKER, F. 1863. Crambites & Tortricites. *List of the Specimens of Lepidopterous Insects in the Collection of the British Museum, London* 27: 1-286.

WALKER, F. 1866a ["1865"]. Supplement 4. *List of the Specimens of Lepidopterous Insects in the Collection of the British Museum, London* 34: 1121-1533.

WALKER, F. 1866. Supplement 5. *List of the Specimens of Lepidopterous Insects in the Collection of the British Museum, London* 35: 1535-2040.

WOLLASTON, E. 1879. Notes on the Lepidoptera of St. Helena, with descriptions of new species. *Annals and Magazine of Natural History, including Zoology, Botany and Geology, London* (ser. 5) 3: 329-343.

Diversité des oligochètes aquatiques dans la région genevoise (Suisse)

Régis VIVIEN¹ & Michel LAFONT²

¹ Rue du Pré-Naville 6, 1207 Genève, Email: regisvivien@hotmail.com

² Irstea, 3 bis quai Chauveau, CP 220, F-69335 Lyon Cedex 09 (France)

Diversity of aquatic oligochaetes in the Geneva area (Switzerland). -

The principal aim of the present work was to study the composition, the frequency and the occurrence of the taxa/species of oligochaetes in fine/sandy sediments of watercourses of the Geneva area (Switzerland). The aquatic oligochaetes were also studied in other environments and habitats of the region. In total, 59 taxa of oligochaetes (52 species) were met in the region. 44 taxa (38 species) were found in fine/sandy sediments of watercourses and the determination of specimens from ponds, the lakeshore and coarse sediments of watercourses allowed identifying 15 additional taxa (14 species). With the exception of two species (*Nais* sp. and *Pristina proboscidea*), the encountered taxa are fairly common to very common in European freshwater ecosystems. In the Geneva area, only 18 species of aquatic oligochaetes had been mentioned before the present study. Some species/taxa listed in the canton of Geneva seem to have not been mentioned in Switzerland before. The main recommendations to establish in the future an inventory as complete as possible of the species of this group (in the region) are the examination of still little studied or unexplored environments, to sample at different times of year, to practice dissection in addition to routine microscopic examination and to develop and use molecular biology as a tool for species determination.

Keywords: Aquatic oligochaetes - inventory - Geneva - watercourses - ponds - lakeshore.

INTRODUCTION

Les oligochètes (ou Clitellata) forment une classe de l'embranchement des Annélides. Les principales familles d'oligochètes peuplant les eaux douces européennes sont constituées par les Naididae, les Enchytraeidae, les Lumbriculidae, les Haplotaxidae et les Propappidae (Rodriguez & Reynoldson, 2011). La famille des Lumbricidae comprend en outre quelques formes aquatiques ou amphibiennes.

Les oligochètes aquatiques sont diversifiés et abondants dans presque tous les habitats, incluant les eaux marines ou saumâtres, et les eaux hyporhéiques et souterraines. Cette taxocénose renferme des espèces sensibles et très résistantes aux pollutions organiques et toxiques (Lafont, 1989; Rodriguez & Reynoldson, 2011), ce qui permet d'évaluer un large gradient d'effets des pollutions. Cette taxocénose est

donc couramment utilisée comme bioindicateur de la qualité des sédiments et de l'eau des cours d'eau et des lacs et des eaux souterraines (Lafont *et al.*, 2010, 2012; Rodriguez & Reynoldson, 2011).

En Suisse, la présence d'oligochètes aquatiques a été signalée à la fin du 19^{ème} siècle et au début du XX^e siècle dans de nombreux lacs et cours d'eau (Piguet & Bretscher, 1913). Mais ces auteurs relèvent que plusieurs régions et de nombreux cours d'eau n'ont pas été explorés. Depuis plusieurs décennies, les oligochètes sont utilisés en Suisse pour évaluer la qualité biologique des sédiments de lacs (Lods-Crozet & Reymond, 2004, 2005; Lang, 2009; 2010). Les données sur la composition faunistique des oligochètes au niveau des lacs suisses sont donc abondantes par rapport à celles qui existent sur les cours d'eau.

Dans la région genevoise, la composition et la distribution des oligochètes aquatiques des sédiments fins de cours d'eau ont été étudiées depuis 2008 par le Service de l'écologie de l'eau dans le cadre d'un suivi de la qualité biologique des sédiments (Vivien, 2009, 2011, 2012; Vivien *et al.*, 2011). Les peuplements d'oligochètes ont également été recensés en 2011 dans d'autres milieux de la région (étangs, sédiments grossiers d'un cours d'eau et rives du lac Léman), et ce dans le cadre d'un projet de constitution d'une collection de référence pour le Muséum d'histoire naturelle de la Ville de Genève.

Dans le contexte d'une utilisation croissante en Suisse des oligochètes aquatiques comme outil de bioindication, le but du présent travail est d'apporter, dans un premier temps, des informations sur les communautés d'oligochètes aquatiques peuplant les sédiments fins/sableux de cours d'eau et divers autres milieux/habitats (étangs, rive du lac Léman et sédiments grossiers de cours d'eau) de la région genevoise.

MATÉRIEL ET MÉTHODES

SITES D'ÉTUDE

La plupart des sites d'études se situent dans le canton de Genève (Figure 1). Certains sites se situent en France voisine (11 stations de cours d'eau).

SÉDIMENTS FINS/SABLEUX DE COURS D'EAU

38 stations appartenant à 21 cours d'eau de la région genevoise (plusieurs bassins versants) ont été étudiées entre 2008 et 2011 dans le cadre d'un travail de Master en 2008-2009 (Vivien, 2009; Vivien *et al.*, 2011) et dans le cadre du programme 2010 et 2011 de surveillance de la qualité des cours d'eau du Service de l'écologie de l'eau (Vivien, 2011; 2012): la Seymaz (amont Rouelbeau, Claparède et embouchure); le Rhône (amont et aval STEP Aïre, Chèvres et baie de Peney); l'Allondon (amont STEP St-Genis, Grand-Pré, Fabry et La Plaine); le nant d'Avril (Bourdigny et Peney); la Laire (embouchure); le Merley (aval route de Chancy); la Versoix (amont Divonne, amont STEP Divonne et aval STEP Divonne); l'Hermance (pont de Crévy et pont Neuf); l'Aire (Thérens, pont de Certoux, aval Ziplo et pont du Centenaire); le Grand Nant (amont Malchamps), le Ternier (amont St Julien), le nant de la Folle (amont Grand Nant), la Lissole (amont Busage), le Voiret (embouchure), la Drize (Evordes et Grange-Collomb), la Clef (amont Tate), le Marais (Bellavista), la Bistoquette (bois



FIG. 1

Situation des stations de prélèvements dans la région genevoise (aire du canton de Genève en gris clair, à droite localisation de la carte au niveau du pays). Cours d'eau: (1) Rhône; (2) Allondon; (3) Lion; (4) Versoix; (5) nant d'Avril; (6) Charmilles; (7) Aire; (8) Seymaz; (9) Hermance; (10) Drize; (11) Merley; (12) nant des Crues; (13) Laire; (14) Voiret; (15) Lissolle; (16) Ternier; (17) nant de la Folle; (18) Clef; (19) Marais; (20) Bistoquette; (21) Grand Nant. Rives du lac Léman: (22) Pointe à la Bise; (23) Hermance. Etangs: (24) Voltaire; (25) Combès Chapuis; (26) Pré Béroud.

d'Humilly, entrée bois d'Humilly), le Lion (embouchure), le Charmilles (chemin de Brive) et le nant des Crues (Eaumorte).

Les stations présentent des degrés très divers de pollution (non polluées à très polluées). 1 à 3 campagnes de prélèvements ont été réalisées (1 campagne sur 21 stations, 2 sur 13 stations et 3 sur 4 stations). Au total, 59 relevés ont été effectués. Environ 100 spécimens ont été déterminés par station. Au total, 5760 spécimens ont été déterminés.

AUTRES MILIEUX

Les spécimens des sédiments grossiers (cours d'eau) ont été prélevés dans la Versoix en amont de Divonne en juillet 2011 et ceux des sédiments du lac (rives) à

Pointe à la Bise et à Hermance en novembre 2011. Les spécimens d'étangs proviennent de collections du Muséum de la Ville de Genève. Ils ont été prélevés en 1980, 1984 et 1985 dans trois étangs: Pré-Béroud, réserve Voltaire et Combes Chapuis (Oertli, 1986). 1108 spécimens ont été examinés (étangs: 657 spécimens, rives du lac: 303 spécimens, sédiments grossiers de cours d'eau: 148 spécimens).

PRÉLÈVEMENTS, TRI ET MONTAGE

Les sédiments fins/sableux et grossiers des cours d'eau et les sédiments du lac ont été prélevés à l'aide d'un carottier (sédiments fins) ou d'un filet type Surber de vide de maille de 0,1 mm (sédiments fins, sableux et grossiers) ou d'une benne (sédiments fins profonds). Les prélèvements ont été effectués à 2 ou 3 endroits différents (au niveau de la station). Les vers ont été fixés sur le terrain au formaldéhyde. Au laboratoire, le tamisage des sédiments a été effectué sur une colonne de 2 tamis (5 mm et 0,5 mm de vide de maille). Le refus du tamis à 0,5 mm de vide de maille a été transféré dans une cuve de sous-échantillonnage compartimentée en 25 cases carrées de surface égale. Le contenu de cases choisies au hasard à l'aide de nombres aléatoires a été transféré dans une boîte de Petri et examiné avec une loupe binoculaire. Cent oligochètes identifiables ou davantage ont été ainsi prélevés pour l'étape de la détermination et conservés dans le formol. La densité des oligochètes a été calculée pour une surface de 0,1 m².

Concernant les étangs, les méthodes de prélèvements sont très différentes de celles des autres milieux. Les oligochètes ont été prélevés et triés dans le cadre d'une étude visant à étudier l'ensemble de la faune benthique (Oertli, 1986). Un filet de vide de maille de 1,013 mm a été utilisé. A chaque point de prélèvement (zone littorale et centrale), les sédiments de surface ont été raclés sur une distance d'environ 1 m. Les invertébrés ont été fixés sur le terrain au formol. Au laboratoire, le tamisage des sédiments a été effectué sur une colonne de 2 tamis (5 mm et 0,315 mm de vide de maille).

Les oligochètes ont été éclaircis (dans une solution d'acide lactique/glycérol), puis montés entre lame et lamelle dans une solution d'enrobage permanente composée d'acide lactique, de glycérol et d'alcool polyvinyle (mowiol 4-88).

DÉTERMINATIONS

Les spécimens ont été identifiés à l'espèce, au genre, à la famille ou au groupe (dans le cas des Tubificinae avec ou sans soies capillaires non reconnaissables à l'état immature). Pour les identifications de base, nous avons utilisé des documents anciens (Sperber, 1948; Brinkhurst, 1971). Ces travaux ont été complétés par divers ouvrages plus récents (Timm & Veldhuijzen van Zanten, 2002; Erséus *et al.*, 2008; Rodriguez & Achurra, 2010; Envall *et al.*, 2012).

RELEVÉ DE LA PRÉSENCE, LA FRÉQUENCE ET L'OCCURRENCE DES ESPÈCES

Le nombre d'exemplaires identifiés dans chaque milieu est très variable: il est élevé pour les sédiments fins/sableux de cours d'eau, assez faible pour les étangs et très faible pour les rives du lac Léman et les sédiments grossiers de cours d'eau. La fréquence et le pourcentage d'occurrence (P.O.) n'ont été calculés que pour les sédiments fins/sableux de cours d'eau. Pour les autres milieux, seule la présence d'espèces non trouvées dans les sédiments fins/sableux est signalée. La fréquence d'un taxon

correspond au % d'individus du taxon par rapport au total des individus (de l'ensemble des stations); le P.O. (= constance) d'un taxon est le nombre de relevés où le taxon a été identifié, divisé par le nombre total de relevés. Les taxons sont désignés comme étant rares lorsque le P.O. est < 5 et assez rares lorsque le P.O. est ≥ 5 et < 10 .

RÉSULTATS

SÉDIMENTS FIN/SABLEUX DE COURS D'EAU

Au total, 44 taxons d'oligochètes (38 espèces) appartenant à 5 familles ont été trouvés dans les sédiments fins/sableux de cours d'eau: Naididae (31 taxons), Lumbriculidae (3), Enchytraeidae (7), Lumbricidae (2) et Haplotaxidae (1) (Tab. 1).

Sur l'ensemble des relevés, les Naididae de la sous-famille Tubificinae sont les plus fréquents, suivis des Lumbriculidae, des Naididae des sous-familles Naidinae et Pristininae, et des Enchytraeidae (Tab. 1). Les sous-familles Tubificinae, Naidinae et Pristininae et la famille des Lumbriculidae sont constantes, la famille des Enchytraeidae est moins constante. Les Naidinae, les Pristininae et les Enchytraeidae sont plus fréquents et plus constants dans les cours d'eau de la rive gauche du Rhône que dans ceux de la rive droite (Vivien, 2012). Les Lumbriculidae sont plus fréquents et plus constants dans les cours d'eau de la rive droite du Rhône que dans ceux de la rive gauche (Vivien, 2012).

La fréquence des Tubificinae est en général peu élevée en tête des bassins versants et augmente en aval, dès la présence de zones agricoles, industrielles et urbaines. Les Lumbriculidae et Naidinae dominent en tête des bassins versants et dans les secteurs en aval non pollués. Par relevé, la densité d'oligochètes varie entre 150 et 20 000 individus pour 0,1 m². En général, les effectifs sont peu élevés en tête des bassins versants et dans les secteurs aval non pollués ($< 1000 / 0,1 \text{ m}^2$). Ils s'avèrent élevés à très élevés dans les secteurs situés dans les zones agricoles, industrielles et urbaines, souvent contaminées par les métaux et/ou les matières organiques (Vivien, 2011; 2012; Vivien *et al.*, 2011).

Au sein de la sous-famille des Tubificinae, *Limnodrilus hoffmeisteri*, *Lophochaeta ignota* et *Psammoryctides barbatus* sont les plus fréquents. Les espèces suivantes de Tubificinae présentent un pourcentage d'occurrence (P.O.) ≥ 25 : *Tubifex tubifex*, *L. ignota*, *Aulodrilus pluriseta*, *Psammoryctides barbatus*, *Limnodrilus hoffmeisteri*, *L. claparedianus*, *L. profundicola* et *L. udekemianus*. En ce qui concerne les autres familles et sous-familles, *Stylodrilus heringianus*, *Pristina jenkinae*, *Nais communis*, *N. elinguis* et *Enchytraeus buchholzi* sont les espèces les plus constantes. Toutefois, notons que les fréquences et occurrences réelles de *T. tubifex*, *Potamothrix bavaricus*, *P. hammoniensis*, *L. hoffmeisteri*, *L. claparedianus*, *L. profundicola*, *P. moldaviensis*, *S. heringianus* et *Bichaeta sanguinea* ne sont pas connues avec exactitude puisque les spécimens identifiés ici correspondent aux formes adultes, ces espèces ne pouvant pas être identifiées à l'état immature. Relevons que la fréquence des Tubificinae et des Lumbriculidae non identifiables à l'état immature est élevée.

Douze espèces/taxons sont rares et 12 assez rares (Tab. 1). Les Naidinae et les Pristininae comptent le plus d'espèces/taxons rares/assez rares (13). Toutefois, *Potamothrix moldaviensis*, désignée comme étant rare en raison de sa présence dans un seul cours d'eau (P.O.= 3), est en quantité relativement importante (fréquence de 0,82).

TABLEAU 1: Espèces rencontrées dans les sédiments fins/sableux des cours d'eau genevois avec indication de leur fréquence (%) et % d'occurrence; * espèce/taxon assez rare, ** espèce/taxon rare; ○ espèce nouvelle pour la région genevoise; □ espèce nouvelle pour la Suisse; Δ espèce répertoriée dans la région genevoise uniquement par Bretscher & Piguet (1913)

taxon	Fréquence	Occurrence
Naididae Tubificinae		
Tubificinae avec soies capillaires non reconnaissables à l'état immature		
<i>Aulodrilus pluriseta</i> (Piguet, 1906)	24,36	92
<i>Branchiura sowerbyi</i> Beddard, 1892 ○	1,65	43
<i>Embolocephalus velutinus</i> (Grube, 1879) ** ○	0,23	12
<i>Haber</i> sp. * ○ □	0,07	3
<i>Lophochaeta ignota</i> Štolc, 1886	0,42	7
<i>Potamothonix bavaricus</i> (Oschmann, 1913) ○ □	2,34	30
<i>Potamothonix hammoniensis</i> (Michaelsen, 1901) * ○	0,43	17
<i>Psammoryctides barbatus</i> (Grube, 1861)	0,12	8
<i>Tubifex tubifex</i> (Müller, 1774)	2,03	30
Total Tubificinae avec soies capillaires	0,97	43
Total Tubificinae avec soies capillaires	32,62	97
Tubificinae sans soies capillaires non reconnaissables à l'état immature		
<i>Aulodrilus limnobioides</i> Bretscher, 1899 * ○	29,79	90
<i>Limnodrilus claparedianus</i> Ratzel, 1868	0,09	5
<i>Limnodrilus hoffmeisteri</i> Claparede, 1862	0,75	27
<i>Limnodrilus profundicola</i> (Verrill, 1871)	5,19	77
<i>Limnodrilus udekemianus</i> Claparede, 1862	0,56	25
<i>Potamothonix moldaviensis</i> Vejdovský & Mrázek, 1903 ** ○	1,58	27
Total Tubificinae sans soies capillaires	0,82	3
Total Tubificinae sans soies capillaires	38,77	98
Naididae Pristininae		
<i>Pristina foreli</i> (Piguet, 1906) ** ○	0,07	2
<i>Pristina jenkinae</i> (Stephenson, 1932) ○ □	1,84	33
Naididae Naidinae		
<i>Aulophorus furcatus</i> (Oken, 1815) ** ○	0,03	2
<i>Chaetogaster diaphanus</i> (Gruithuisen, 1828) *	0,16	8
<i>Dero digitata</i> (Müller, 1774) * ○	0,09	7
<i>Nais alpina</i> Sperber, 1948 * ○ □	0,56	7
<i>Nais barbata</i> Müller, 1774 *	0,05	5
<i>Nais bretscheri</i> Michaelsen, 1899 ** ○	0,05	3
<i>Nais christinae</i> Kasprzak, 1973 * ○ □	0,30	7
<i>Nais communis</i> Piguet, 1906	0,75	20
<i>Nais elongata</i> Müller, 1774 ○	5,64	28
<i>Nais pardalis</i> Piguet, 1906 ** ○	0,03	3
<i>Nais</i> sp. (<i>Nais stolci</i> Hrabě, 1981 ?) ** ○ □	0,07	3
<i>Nais variabilis</i> Piguet, 1906 ** ○	0,02	2
<i>Ophidona serpentina</i> (Müller, 1774) * ○	0,17	8
<i>Slavina appendiculata</i> (Udekem, 1855) ** ○	0,02	2
Total Pristininae + Naidinae	9,84	63
Lumbriculidae		
<i>Bichaeta sanguinea</i> Bretscher, 1900 ** ○	0,05	3
<i>Lumbriculus variegatus</i> (Müller, 1774) **	0,09	3
<i>Stylodrilus heringianus</i> Claparede, 1862	2,12	30
<i>Stylodrilus lemani</i> (Grube, 1879) Δ	—	—
<i>Trichodrilus allobrogum</i> Claparède, 1862 Δ	—	—
Lumbriculidae non reconnaissables à l'état immature	12,57	58
Total Lumbriculidae	14,83	65

taxon		Fréquence	Occurrence
Enchytraeidae			
<i>Cernosvitoviella</i> sp. * ○		0,17	7
Enchytraeidae g. sp.		0,35	12
<i>Enchytraeus buchholzi</i> Vejdovsky, 1878		0,66	22
<i>Henlea</i> sp. * ○		0,54	8
<i>Lumbricillus</i> sp. ○		0,31	10
<i>Marionina argentea</i> (Michaelsen, 1889) * ○		0,30	8
<i>Marionina riparia</i> Bretscher, 1899○		0,43	15
Total Enchytraeidae		2,76	37
Lumbricidae			
<i>Eiseniella tetraedra</i> (Savigny, 1826) ○		1,04	10
Lumbricidae g. sp.		0,09	7
Total Lumbricidae		1,13	15
Haplotaxidae			
<i>Haplotaxis</i> cf. <i>gordioides</i> (Hartmann, 1821) **		0,07	3

De même, parmi les 12 taxons désignés comme étant assez rares, 5 taxons ont une fréquence plus élevée que les autres ($\geq 0,3$).

Plusieurs spécimens du genre *Nais* (Naidinae) n'ont pour le moment pas pu être déterminés. Ils proviennent des stations du Charmilles et du nant des Crues, deux affluents du Rhône. Les spécimens rencontrés se distinguent de *Nais pardalis* par des crochets ventraux peu épaisse à partir du métamère VI et par une forme des aiguilles dorsales différente, de *Nais communis* par des aiguilles dorsales à dents parallèles relativement longues et par des crochets ventraux avec des dents de longueur inégale, de *Nais stolci* Hrabě 1981 par l'absence de crochets ventraux très élargis et de *Nais bretscheri* par l'absence de crochets ventraux géants. Ces spécimens semblent donc appartenir à une espèce différente, intermédiaire entre les 4 espèces citées précédemment. Mais ils pourraient éventuellement appartenir à l'espèce *Nais stolci* sans crochets ventraux très élargis. Il nous semble encore hasardeux d'attribuer ces spécimens à une espèce nouvelle, compte tenu de la variabilité intra-spécifique des caractères morphologiques au sein du genre *Nais*.

AUTRES MILIEUX

La détermination des spécimens provenant d'étangs, des rives du lac Léman et des sédiments grossiers d'un cours d'eau a permis de recenser 15 taxons supplémentaires (14 espèces) pour la région genevoise (Tab. 2). Notons que *Dero obtusa* et *Dero nivea* sont difficiles à distinguer, *D. nivea* se caractérisant par des fossettes branchiales présentant un prolongement vers l'arrière, ce caractère étant absent chez *D. obtusa*. Les deux spécimens de *D. nivea* rencontrés ont pu être identifiés grâce à ce caractère morphologique.

DISCUSSION

Envall *et al.* (2012) ont montré qu'il existait une diversité cryptique au sein du genre *Nais*. Par exemple, le complexe *Nais communis* / *variabilis* présente au moins six morphotypes différents, très difficiles à distinguer morphologiquement (Envall *et al.*, 2012). S'ils n'appartiennent pas à une espèce nouvelle, nos spécimens de *Nais* sp.

TABLEAU 2: Espèces rencontrées dans les sédiments des étangs et des rives du lac et les sédiments grossiers d'un cours d'eau (région genevoise) et non rencontrées dans les sédiments fins/sableux des cours d'eau (genevois), avec indication du milieu de provenance; ○ espèce nouvelle pour la région genevoise; □ espèce nouvelle pour la Suisse; Δ espèce répertoriée dans la région genevoise uniquement par Bretscher & Piguet (1913)

	Milieu
Naididae Tubificinae	
<i>Ilyodrilus templetoni</i> (Southern, 1909) ○	étang
<i>Potamothrix heuscheri</i> (Bretscher, 1900) ○	étang
Naididae Naidinae et Pristininae	
<i>Chaetogaster diastrophus</i> (Gruithuisen, 1828) Δ	étang
<i>Dero nivea</i> Aiyer, 1929 ○	étang
<i>Dero obtusa</i> Üdekem, 1855 ○	étang
<i>Nais pseudobtusa</i> Piguet, 1906	étang
<i>Piguetiella blanci</i> (Piguet, 1906) ○	rive lac
<i>Pristina aequiseta</i> f. <i>aequiseta</i> Bourne, 1891 ○	rive lac
<i>Pristina longiseta</i> Ehrenberg, 1828 ○	rive lac
<i>Pristina proboscidea</i> Beddard, 1896 ○□	rive lac
<i>Specaria josinae</i> (Vejdovsky, 1884) ○	étang
<i>Uncinaria uncinata</i> (Orsted, 1842) ○	rive lac
<i>Vejdovskyella intermedia</i> (Bretscher, 1896) ○	étang
Enchytraeidae	
séd. grossiers de cours d'eau	
<i>Achaeta</i> sp. ○	et étang
<i>Cognettia glandulosa</i> (Michaelsen, 1888) ○	- idem -
<i>Cognettia sphagnetorum</i> (Vejdovsky, 1878) ○□	- idem -

pourraient constituer un exemple supplémentaire de l'existence d'une diversité cryptique au sein du genre *Nais*.

A l'exception des deux espèces *Nais* sp. - *Nais stolci* ? - et *Pristina proboscidea*, les taxons/espèces rencontrés sont assez communs à très communs dans les écosystèmes d'eau douce européens. Ils figurent dans les listes d'espèces/taxons répertoriés en France (Giani, 1976; Lafont, 1989; Rosso, 1995; Vivier, 2006; Jézéquel *et al.*, 2011). La présence de *Nais stolci*, espèce rarement mentionnée en Europe, a été signalée sur le Haut-Rhône français, mais cette dernière mention reste à être confirmée (Jézéquel *et al.*, 2011). *Pristina proboscidea* a été rarement répertoriée en Europe (Rodriguez & Armas, 1983). Cette espèce est en fait très proche de *P. longiseta* et s'en distingue par des soies capillaires non allongées au métamère III et par l'absence de crochets ventraux géants au métamère III.

Les taxons rencontrés dans les étangs et les rives du lac Léman, et non recensés dans les cours d'eau, peuvent se trouver à la fois dans les milieux lentiques et lotiques (Lafont, 1989). Mais *Piguetiella blanci* serait plus fréquente dans les lacs que dans les cours d'eau (Lafont, 1989), fait qu'il conviendrait toutefois de vérifier. A l'inverse, *A. limnobioides* et *N. alpina* sont typiques des milieux lotiques (Nijboer *et al.*, 2004).

Les espèces de Naidinae et de Lumbriculidae sont plus compétitives que les Tubificinae en absence de pollution et ont tendance à dominer dans les secteurs préservés, ce qui constitue d'ailleurs une observation ancienne (Brinkhurst, 1965). Les

Tubificinae prédominent en effet dans les secteurs pollués. La différence de fréquence et de constance des Naidinae, des Pristininae, des Enchytraeidae et des Lumbriculidae entre les cours d'eau de la rive gauche du Rhône et ceux de la rive droite, pourrait être due au fait que la pollution est en général plus importante dans les cours d'eau de la rive gauche (Vivien, 2011, 2012; Vivien *et al.*, 2011).

Dans la région de Genève, seulement 18 espèces d'oligochètes aquatiques avaient été signalées au XIX^e siècle et au début du XX^e siècle par Piguet & Bretscher (1913) dans la Seymaz (10 espèces), le Rhône (3 espèces), le lac (1 espèce) et un étang (2 espèces). Il s'agit de *Tubifex tubifex*, *Lophochaeta ignota*, *Aulodrilus pluriseta*, *Psammoryctides barbatus*, *Limnodrilus hoffmeisteri*, *L. udekemianus*, *L. claparedianus*, *L. profundicola*, *Stylodrilus heringianus*, *Lumbriculus variegatus*, *Enchytraeus buchholzi*, *Haplotaxis cf. gordioides*, *Nais communis*, *N. barbata*, *N. pseudobtusa*, *Stylodrilus lemani*, *Trichodrilus allobrogum* et *Chaetogaster diastrophus*. Les 15 premières espèces citées ci-dessus sont communes dans les cours d'eau et ont été rencontrées dans le présent travail. En revanche, nous n'avons pas rencontré *S. lemani* et *C. diastrophus*. *T. allobrogum* est une espèce inféodée aux eaux souterraines et sa détermination nécessite une méthode poussée telle que la dissection. Précisons que *Limnodrilus helveticus*, *Tubifex filum*, et *Nais obtusa*, mentionnées dans le canton par Piguet & Bretscher (1913), correspondent aux espèces *Limnodrilus profundicola*, *Lophochaeta ignota* et *Nais barbata*. Signalons encore que la présence de *Potamothonix vedovskyi* (Hrabě, 1941) et de *Spirosperra ferox* Eisen, 1879 a été signalée dans le petit lac (partie ouest du lac Léman) (Lang & Reymond, 1995), mais cette étude n'indique pas leur localisation précise (présence dans la région genevoise ?).

Les espèces/taxons rencontrés dans le présent travail et non répertoriés en Suisse par Piguet & Bretscher (1913) sont: *Potamothonix bavaricus*, *Branchiura sowerbyi*, *Haber* sp., *Ilyodrilus templetoni*, *Potamothonix moldaviensis*, *Pristina jenkinae*, *Nais alpina*, *Nais* sp. (*Nais stolci* ?), *Nais christinae*, *Pristina proboscidea*, *Cernosvitoviella* sp., *Marionina argentea*, *Cognettia glandulosa* et *C. sphagnetorum*. La présence de *P. moldaviensis* et de *B. sowerbyi* a été relevée en Suisse dans des lacs (Lods-Crozet & Reymond, 2005) et celle de *I. templetoni* dans le lac Léman (Lang, 1984). Lafont & Malard (2001) ont relevé la présence de *M. argentea*, de deux espèces de *Cernosvitoviella* et de *C. glandulosa* dans les sédiments de surface et dans la zone hyporhéique d'une rivière glaciaire suisse (rivière Roseg, localisée dans le sud-est de la Suisse, dans le massif de la Bernina). Les autres espèces ne semblent pas avoir été mentionnées en Suisse auparavant.

Branchiura sowerbyi et *Potamothonix moldaviensis* peuvent avoir colonisé les lacs suisses au XX^e siècle (Lods-Crozet & Reymond, 2005). Leur signalement dans des cours d'eau genevois mettrait en évidence leur potentiel invasif. Il est également possible que les autres espèces / taxons non mentionnés par Piguet & Bretscher (1913) soient récemment apparus en Suisse, en particulier *Potamothonix bavaricus* et *Pristina jenkinae* qui sont plutôt constants dans nos prélèvements. L'évolution des populations de toutes ces espèces/taxons devrait être suivie dans le futur.

Les résultats des inventaires d'oligochètes dépendent du nombre de prélèvements effectués, de l'importance de l'étendue géographique de la région recensée, de la variation temporelle des prélèvements, de la diversité des milieux et habitats étudiés

(Nijboer *et al.*, 2004) et de l'état de pollution des milieux. De plus, la maille du filet de prélèvement et des tamis utilisés au laboratoire est déterminante, voire prédominante (Nalepa & Robertson, 1981; Nijboer *et al.*, 2004; Lafont & Vivier, 2006). La maille du filet de prélèvement ne devrait pas dépasser 0,2 mm pour retenir les oligochètes de petite taille (Lafont, 1989).

L'absence d'une espèce à un endroit est donc une information difficile à interpréter et ne signifie pas obligatoirement que l'espèce est absente ou rare dans le milieu. Différents facteurs peuvent être mis en cause: absence de la forme mature, cycle de vie, espèce de très petite taille, conditions physico-chimiques, etc.

Il est également important de noter que les résultats des inventaires obtenus dépendent de l'expérience des taxonomistes dans la détermination des espèces de ce groupe (Nijboer *et al.*, 2004) et des méthodes de détermination employées. Les espèces d'Enchytraeidae et certaines espèces de Lumbriculidae ne peuvent normalement pas être déterminées sur la base de méthodes utilisées en routine.

En conclusion, en ajoutant les trois espèces mentionnées par Piguet & Bretscher (1913), le nombre total d'espèces et taxons recensés ou potentiellement présents en région genevoise est provisoirement de 62 taxons, dont 55 espèces. Ce nombre n'est bien sûr pas définitif et va très probablement augmenter au fur et à mesure de la réalisation de futurs travaux. Pour établir un inventaire le plus complet possible, il serait important d'effectuer davantage de prélèvements dans les milieux les moins étudiés (lacs, étangs, sédiments grossiers de cours d'eau), d'explorer des milieux encore non étudiés (eaux souterraines et zones hyporhéiques), de pratiquer la dissection en plus de l'examen microscopique de routine et d'échantillonner à différentes périodes de l'année pour augmenter les chances de trouver les formes matures des espèces présentes.

Ce nombre de 62 taxons dans la région de Genève semble assez important compte tenu du nombre d'identifications effectuées, de la faible diversité des milieux et substrats étudiés (surtout sédiments fins/sableux de cours d'eau) et de l'aire géographique limitée. Le fait que les prélèvements aient été effectués dans des sédiments à degrés de pollution très divers (à la fois en amont et en aval des cours d'eau) et à différentes périodes de l'année explique probablement cette diversité.

A titre de comparaison, Giani (1976) a signalé la présence de 46 espèces (Enchytraeidae non compris) dans différents milieux aquatiques du sud-ouest de la France; Timm (1997) la présence de 49 taxons dans différents cours d'eau en Russie (vaste aire géographique); Rodriguez & Armas (1983) la présence de 59 espèces dans des cours d'eau du pays basque (différents types de substrats); Nijboer *et al.* (2004) la présence de 76 espèces (Enchytraeidae non compris) aux Pays-Bas (différents types de milieux aquatiques), mais avec 8 à 48 espèces par région. Rosso (1995) a rencontré 95 taxons dans les sédiments fins/sableux de cours d'eau en plaine d'Alsace, mais ce travail était basé sur 117 relevés, la région étudiée (bassin versant de l'Ill) était plus vaste que celle prospectée ici, et des mailles de filet ou de tamis de 0,16 mm avaient été utilisées sur le terrain et au laboratoire. En outre, 3 saisons de prélèvements avaient été retenues sur les stations étudiées, avec 13 saisons de récolte sur deux sites (un site de référence et un site pollué).

Ce premier aperçu est encourageant et permet de souligner la richesse en espèces des peuplements d'oligochètes des milieux aquatiques genevois, et le fort degré de parenté de ces peuplements avec ceux qui ont été recensés en Europe. C'est stimulant pour l'utilisation en routine de méthodologies standardisées et déjà utilisées en France (indice IOBS, AFNOR, 2002; traits fonctionnels, Lafont *et al.*, 2010; indice IOBL lacustre, Lafont *et al.*, 2012), ou au Canada sur des lacs urbains (Tixier *et al.*, 2011a, 2011b).

Finalement, la prise en considération de l'outil de détermination des oligochètes aquatiques par la biologie moléculaire permettrait de réviser la taxonomie et d'améliorer les inventaires (Rodriguez & Reynoldson, 2011). Le développement et l'utilisation du barcoding permettraient de déterminer les spécimens non identifiables à l'état immature et les spécimens des groupes difficiles (entre autres ceux renfermant des espèces cachées tels que les genres *Nais* et *Enchytraeus*) et ainsi de connaître toutes les espèces présentes dans un prélèvement. En outre, la poursuite de l'inventaire des oligochètes aquatiques dans et hors la région genevoise devrait constituer une base solide pour les travaux en écologie aquatique, incluant le cadre appliqué de la bio-indication.

REMERCIEMENTS

Nous remercions Jean Mariaux et Patrick Martin pour leurs avis pertinents qui nous ont permis d'améliorer significativement le texte, Vincent Ebener pour son assistance technique sur le terrain, Stéphanie Mercier et Yaniss Guigoz pour leur aide pour la réalisation de la carte.

REFERENCES

AFNOR, 2002. Qualité de l'eau – Détermination de l'indice oligochètes de bioindication des sédiments (IOBS). Norme Française NF T 90-390: 11 p. + annexes.

BRINKHURST, R. O. 1965. Observation on the recovery of a British river from gross organic pollution. *Hydrobiologia* 25: 9-51.

BRINKHURST, R. O. 1971. A guide for the identification of British Aquatic Oligochaeta. *Scientific Publication of the Freshwater Biology Association, Ambleside*, 22: 55 pp.

ENVALL, I., GUSTAVSSON, L. M. & ERSÉUS, C. 2012. Genetic and chaetal variation in *Nais* worms (Annelida, Clitellata, Naididae). *Zoological Journal of the Linnean Society* 165: 495-520.

ERSÉUS, C., WETZEL, M. J. & GUSTAVSSON, L. 2008. ICZN rules – a farewell to Tubificidae (Annelida, Clitellata). *Zootaxa* 1744: 66-68.

GIANI, N. 1976. Les oligochètes aquatiques du sud-ouest de la France. *Annales de Limnologie* 12: 107-125.

JEZEQUEL, C., LAFONT, M. & BONNARD, R. 2011. Evolution du fonctionnement sur le chenal central et les bras morts du Haut Rhône français suite à des opérations de restauration physique et hydrologique à partir de communautés d'oligochètes. *Rapport Cemagref Lyon-ZABR, France*: 81 pp.

LAFONT, M. 1989. Contribution à la gestion des eaux continentales: utilisation des Oligochètes comme descripteurs de l'état biologique et du degré de pollution des eaux et des sédiments. *Thèse de Doctorat d'Etat ès Sciences, UCBL Lyon I*: 311 pp. + annexes 92 pp.

LAFONT, M. & MALARD, F. 2001. Oligochaetes communities in the hyporheic zone of a glacial river, the Roseg River, Switzerland. *Hydrobiologia* 463: 75-81.

LAFONT, M. & VIVIER, A. 2006. Oligochaete assemblages in the hyporheic zone and coarse surface sediments: their importance for understanding of ecological functioning of watercourses. *Hydrobiologia* 564: 171-181.

LAFONT, M., JEZEQUEL, C., VIVIER, A., BREIL, P., SCHMITT, L. & BERNOULD, S. 2010. Refinement of biomonitoring of urban water courses by combining descriptive and ecohydrological approaches. *Ecohydrology and Hydrobiology* 10: 3-11.

LAFONT, M., TIXIER, G., MARSALEK, J., JEZEQUEL, C., BREIL, P. & SCHMITT, L. 2012. From research to operational biomonitoring of freshwaters: a suggested conceptual framework and practical solutions. *Ecohydrology and Hydrobiology* 12: 9-20.

LANG, C. 1984. Faune benthique. *Rapport de la Commission Internationale pour la protection des eaux du lac Léman contre la pollution*, Le Léman, synthèse 1957-1982, Lausanne: 325-336.

LANG, C. 2009. Indices basé sur les oligochètes et les chironomes indiquant la restauration écologique des sédiments du Léman. *Bulletin de la société vaudoise des sciences naturelles* 91: 283-300.

LANG, C. 2010. Etat écologique des sédiments de deux lacs de montagne indiqué par les oligochètes et les chironomes. *Bulletin de la société vaudoise des sciences naturelles* 92: 47-60.

LANG, C. & REYMOND, O. 1995. Etat trophique du petit lac en 1994 indiqué par les communautés de vers. Campagne 1994. *Rapport de la Commission Internationale pour la protection des eaux du lac Léman contre la pollution*: 193-197.

LODS-CROZET, B. & REYMOND, O. 2004. Réponses des communautés benthiques du Léman à l'amélioration de l'état trophique du Léman entre 1983 et 2003. Campagne 2003. *Rapport de la Commission Internationale pour la protection des eaux du lac Léman contre la pollution*: 99-109.

LODS-CROZET, B. & REYMOND, O. 2005. Ten years trends in the oligochaete and chironomid fauna of Lake Neuchâtel (Switzerland). *Revue suisse de Zoologie* 112: 543-558.

NALEPA, T. F. & ROBERTSON, A. 1981. Screen mesh size affects estimates of macro- and meio-benthos abundance and biomass in the Great Lakes. *Canadian Journal of Fisheries and Aquatic Sciences* 38: 1027-1034.

NIJBOER, R. C., WETZEL, M. & VERDONSCHOT, P. F. M. 2004. Diversity and distribution of Tubificidae, Naididae and Lumbriculidae (Annelida: Oligochaeta) in the Netherlands: an evaluation of twenty years of monitoring data. *Hydrobiologia* 520: 127-141.

OERTLI, B. 1986. Etude comparative de la colonisation d'étangs artificiels d'âge différent par les macroinvertébrés benthiques. *Travail de diplôme de biologie*, Université de Genève.

PIGUET, E. & BRETSCHER, K. 1913. Oligochètes. *Catalogue des invertébrés de la Suisse*. Fascicule 7, Genève: 215 pp.

RODRIGUEZ, P. & ARMAS, J. C. 1983. Contribution à la connaissance de la faune d'Oligochètes aquatiques du pays basque et zones limitrophes. *Annales de Limnologie* 19: 93-100.

RODRIGUEZ, P. & ACHURRA, A. 2010. New species of aquatic oligochaetes (Annelida: Clitellata) from groundwaters in karstic areas of northern Spain, with taxonomic remarks on *Lophochaeta ignota* Stolc, 1886. *Zootaxa* 2332: 21-39.

RODRIGUEZ, P. & REYNOLDSON, T. B. 2011. The Pollution Biology of Aquatic Oligochaetes. Ed. Springer Science+Business Media: 224 pp. + annexes.

ROSSO, A. 1995. Description de l'impact des micropolluants sur les peuplements d'Oligochètes des sédiments de cours d'eau du bassin versant de l'Ill (Alsace). Elaboration d'une méthode biologique de diagnostic de l'incidence des micropolluants. *Thèse de Doctorat*, Université Claude Bernard, Lyon I: 176 pp. + annexes.

SPERBER, C. 1948. A taxonomical study of the Naididae. *Zoologiska Bidrag Fran Uppsala* 28: 1-296.

TIMM, T. 1997. Freshwater Oligochaeta of Some Urban Watercourses in the Russian Far East. *Internationale Revue gesamten Hydrobiologie* 82: 437-467.

TIMM, T. & VELDHUIZEN VAN ZANTEN, H. H. 2002. Freshwater Oligochaetae of North-West Europe. *Biodiversity Center of ETI, World Biodiversity Database, CD-ROM*.

TIXIER, G., ROCHFORT, Q., GRAPENTINE, L., MARSALEK, J. & LAFONT, M. 2011a. In search of effective bioassessment of urban stormwater pond sediments: enhancing the “sediment quality triad” approach with oligochaete metrics. *Water, Science and Technology* 64 (7): 1503-1510.

TIXIER, G., LAFONT, M., GRAPENTINE, L., ROCHFORT, Q. & MARSALEK, J. 2011b. Ecological risk assessment of urban stormwater ponds: Literature review and proposal of a new conceptual approach providing ecological quality goals and the associated bioassessment tools. *Ecological Indicators* 11: 1497-1506.

VIVIEN, R. 2009. Bioindication de la qualité des sédiments de cours d'eau genevois par les oligochètes. *Travail de master en sciences naturelles de l'environnement, Université de Genève*: 119 pp. + annexes.

VIVIEN, R. 2011. Application de l'indice oligochètes de bioindication des sédiments (IOBS) aux bassins versants de l'Aire et de la Drize. Rapport d'étude. *Service de l'écologie de l'eau, Département de l'intérieur et de la mobilité, Genève*: 29 pp. + annexes.

VIVIEN, R. 2012. Application de l'indice oligochètes de bioindication des sédiments (IOBS) sur l'Allondon, le Lion, le Charmilles et le nant des Crues. Rapport d'étude. *Service de l'écologie de l'eau, Département de l'intérieur et de la mobilité, Genève*: 24 pp. + annexes.

VIVIEN, R., LAFONT, M. & PERFETTA, J. 2011. Proposition d'un seuil de toxicité des métaux lourds des sédiments mis en évidence par les vers oligochètes dans quelques cours d'eau. *Bulletin de la société vaudoise des sciences naturelles* 92: 153-164.

VIVIER, A. 2006. Effets écologiques de rejets urbains de temps de pluie sur deux cours d'eau périurbains de l'ouest lyonnais et un ruisseau phréatique en plaine d'Alsace. *Thèse, Université de Strasbourg, France*, 208 pp.

REVUE SUISSE DE ZOOLOGIE

Tome 120 — Fascicule 1

	Pages
LIENHARD, Charles & FERREIRA, Rodrigo L. A new species of <i>Neotrogla</i> from Brazilian caves (Psocodea: ‘Psocoptera’: Prionoglarididae)	3-12
RASPI, Alfio. Contribution to the knowledge of the Chamaemyiidae (Diptera) of Italy, Switzerland and some Mediterranean countries with the description of <i>Parochthiphila (Euestelia) ephesi</i> n. spec. from Turkey	13-28
PIEROTTI, Helio. Contributi al riordinamento sistematico dei Peritelini w-paleartici (Coleoptera, Curculionidae, Entiminae). VIII. Sintesi delle conoscenze al 31 dicembre 2010	29-81
ANLAŞ, Sinan. A new species and additional records of the genus <i>Lathrobium</i> Gravenhorst, 1802 from Palaearctic region (Coleoptera: Staphylinidae: Paederinae)	83-91
MAHNERT, Volker. Nachträge zur Pseudoskorponfauna (Arachnida: Pseudoscorpiones) der Höhlen der Insel Santorin (Thera) (Kykladen, Griechenland)	93-100
TANASEVITCH, Andrei V. On linyphiid spiders (Araneae) from Israel	101-124
GERMANN, Christoph. <i>Seticotasteromimus</i> gen. n. <i>jarawa</i> sp. nov. from the Andaman Islands (Coleoptera, Curculionidae)	125-129
BASSI, Graziano. Notes on some Old World Prionapterygini Landry, 1995 (Lepidoptera: Pyraloidea, Crambidae, Crambinae), with descriptions of new species	131-160
VIVIEN, Régis & LAFONT, Michel. Diversité des oligochètes aquatiques dans la région genevoise (Suisse)	161-173

REVUE SUISSE DE ZOOLOGIE

Volume 120 — Number 1

Pages

LIENHARD, Charles & FERREIRA, Rodrigo L. A new species of <i>Neotrogla</i> from Brazilian caves (Psocodea: 'Psocoptera': Prionoglarididae)	3-12
RASPI, Alfio. Contribution to the knowledge of the Chamaemyiidae (Diptera) of Italy, Switzerland and some Mediterranean countries with the description of <i>Parochthiphila (Euestelia) ephesi</i> n. spec. from Turkey	13-28
PIEROTTI, Helio. Contribution to the systematic rearrangement of the west-palaearctic Peritelini (Coleoptera, Curculionidae, Entiminae). VIII. Synthesis of the knowledge up to December 31, 2010	29-81
ANLAŞ, Sinan. A new species and additional records of the genus <i>Lathrobium</i> Gravenhorst, 1802 from Palaearctic region (Coleoptera: Staphylinidae: Paederinae)	83-91
MAHNERT, Volker. Further records of cave-dwelling pseudoscorpions (Arachnida, Pseudoscorpiones) from Santorin (Thera) (Cyclades, Greece)	93-100
TANASEVITCH, Andrei V. On linyphiid spiders (Araneae) from Israel	101-124
GERMANN, Christoph. <i>Seticotasteromimus</i> gen. n. <i>jarawa</i> sp. nov. from the Andaman Islands (Coleoptera, Curculionidae)	125-129
BASSI, Graziano. Notes on some Old World Prionapterygini Landry, 1995 (Lepidoptera: Pyraloidea, Crambidae, Crambinae), with descriptions of new species	131-160
VIVIEN, Régis & LAFONT, Michel. Diversity of aquatic oligochaetes in the Geneva area (Switzerland)	161-173

Indexed in CURRENT CONTENTS, SCIENCE CITATION INDEX

PUBLICATIONS DU MUSEUM D'HISTOIRE NATURELLE DE GENÈVE

CATALOGUE DES INVERTEBRES DE LA SUISSE, N°S 1-17 (1908-1926)	série Fr. 285.— (prix des fascicules sur demande)
REVUE DE PALÉOBIOLOGIE	Echange ou par fascicule Fr. 35.—
LE RHINOLOPHE (Bulletin du centre d'étude des chauves-souris)	par fascicule Fr. 35.—
THE EUROPEAN PROTURA: THEIR TAXONOMY, ECOLOGY AND DISTRIBUTION, WITH KEYS FOR DETERMINATION	
J. NOSEK, 345 p., 1973	Fr. 30.—
CLASSIFICATION OF THE DIPLOPODA	
R. L. HOFFMAN, 237 p., 1979	Fr. 30.—
LES OISEAUX NICHEURS DU CANTON DE GENÈVE	
P. GÉROUDET, C. GUEX & M. MAIRE 351 p., nombreuses cartes et figures, 1983	Fr. 45.—
CATALOGUE COMMENTÉ DES TYPES D'ECHINODERMES ACTUELS CONSERVÉS DANS LES COLLECTIONS NATIONALES SUISSES, SUIVI D'UNE NOTICE SUR LA CONTRIBUTION DE LOUIS AGASSIZ À LA CONNAISSANCE DES ECHINODERMES ACTUELS	
M. JANGOUX, 67 p., 1985	Fr. 15.—
RADULAS DE GASTÉROPODES LITTORAUX DE LA MANCHE (COTENTIN-BAIE DE SEINE, FRANCE)	
Y. FINET, J. WÜEST & K. MAREDA, 62 p., 1991	Fr. 10.—
GASTROPODS OF THE CHANNEL AND ATLANTIC OCEAN: SHELLS AND RADULAS	
Y. FINET, J. WÜEST & K. MAREDA, 1992	Fr. 30.—
O. SCHMIDT SPONGE CATALOGUE	
R. DESQUEYROUX-FAUNDEZ & S.M. STONE, 190 p., 1992	Fr. 40.—
ATLAS DE RÉPARTITION DES AMPHIBIENS ET REPTILES DU CANTON DE GENÈVE	
A. KELLER, V. AELLEN & V. MAHNERT, 48 p., 1993	Fr. 15.—
THE MARINE MOLLUSKS OF THE GALAPAGOS ISLANDS: A DOCUMENTED FAUNAL LIST	
Y. FINET, 180 p., 1995	Fr. 30.—
NOTICE SUR LES COLLECTIONS MALACOLOGIQUES DU MUSEUM D'HISTOIRE NATURELLE DE GENEVE	
J.-C. CAILLIEZ, 49 p., 1995	Fr. 22.—
PROCEEDINGS OF THE XIIIth INTERNATIONAL CONGRESS OF ARACHNOLOGY, Geneva 1995 (ed. V. MAHNERT), 720 p. (2 vol.), 1996	Fr. 160.—

INSTRUMENTA BIODIVERSITATIS

CATALOGUE OF THE SCAPHIDIINAE (COLEOPTERA: STAPHYLINIDAE)
(*Instrumenta Biodiversitatis I*), I. LÖBL, xii + 190 p., 1997 Fr. 50.—

CATALOGUE SYNONYMIQUE ET GEOGRAPHIQUE DES SYRPHIDAE (DIPTERA)
DE LA REGION AFROTROPICALE
(*Instrumenta Biodiversitatis II*), H. G. DIRICKX, x + 187 p., 1998 Fr. 50.—

A REVISION OF THE CORYLOPHIDAE (COLEOPTERA) OF THE
WEST PALAEARCTIC REGION
(*Instrumenta Biodiversitatis III*), S. BOWSTEAD, 203 p., 1999 Fr. 60.—

THE HERPETOFAUNA OF SOUTHERN YEMEN AND THE
SOKOTRA ARCHIPELAGO
(*Instrumenta Biodiversitatis IV*), B. SCHÄTTI & A. DESVOIGNES,
178 p., 1999 Fr. 70.—

PSOCOPTERA (INSECTA): WORLD CATALOGUE AND BIBLIOGRAPHY
(*Instrumenta Biodiversitatis V*), C. LIENHARD & C. N. SMITHERS,
xli + 745 p., 2002 Fr. 180.—

REVISION DER PALÄARKTISCHEN ARTEN DER GATTUNG BRACHYGLUTA
THOMSON, 1859 (COLEOPTERA, STAPHYLINIDAE) (1. Teil)
(*Instrumenta Biodiversitatis VI*), G. SABELLA, CH. BÜCKLE, V. BRACHAT
& C. BESUCHET, vi + 283 p., 2004 Fr. 100.—

PHYLOGENY, TAXONOMY, AND BIOLOGY OF TEPHRITOIDS (FLIES)
(DIPTERA, TEPEHRITOIDEA)
Proceedings of the “3rd Tephritoid Taxonomist’s Meeting, Geneva, 19.-24. July 2004”
(*Instrumenta Biodiversitatis VII*), B. MERZ, vi + 274 p., 2006 Fr. 100.—

LISTE ANNOTÉE DES INSECTES (INSECTA) DU CANTON DE GENÈVE
(*Instrumenta Biodiversitatis VIII*). (ed. B. MERZ), 532 p., 2012 Fr. 85.—

Revue suisse de Zoologie: Instructions for Authors

The *Revue suisse de Zoologie* publishes original results of zoological systematics and related fields. Priority is given to contribution submitted by members of the Swiss Zoological Society or studies presenting results based on collections of Seiss museums. Contributions from other authors may be accepted as space permits.

Submission of a manuscript implies that it has been approved by all authors, that it reports their unpublished work and that it is not being considered for publication elsewhere. A financial contribution may be asked from the authors for the impression of colour plates. All manuscripts are refereed by experts.

In order to facilitate publication and avoid delays authors should follow the *Instructions to Authors* and refer to a current issue of the RSZ or our web-pages for acceptable style and format. Papers may be written in French, German, Italian and English. Authors and writing in their native language should pay particular attention to the linguistic quality of the text.

Manuscripts must be printed, on one side only and double-spaced, on A4 (210 x 297 mm) or equivalent paper and all pages should be membered. All margins must be at least 25 mm wide. Authors must submit **three paper copies** (print-out), including tables and figures, and are expected to retain another copy. **Original artwork** should only be submitted with the revised version of the accepted manuscript. The accepted final version of the manuscript must be submitted on a CD as a single file in Microsoft Word (.doc) or Rich Text Format (.rtf).

The text should be in roman (standard) type face throughout, except for genus and species names which must be formatted in *italics* (**bold italics** in taxa headings) and author's names in the list of references (not in other parts of the text!), which should be formatted in SMALL CAPITALS, LARGE CAPITALS may be used for main chapter-headings and SMALL CAPITALS, for subordinate headings. Footnotes and cross-references to specific pages should be avoided. Papers should conform to the following general layout.

Title page. A concise but informative full title plus a running title of not more than 40 letters and spaces, full name(s) and surname(s) of author(s), and full address(es) including e-mail address(es) if possible.

Abstract. The abstract is in English, composed of the title and a short text of up to 200 words. It should summarise the contents and conclusions of the paper and name all newly described taxa. The abstract is followed by up to 10 keywords, separated by hyphens, which are suitable for indexing. Some of the terms used in the title may be omitted from the list of keywords in favour of significant terms not mentioned in the title.

Introduction. A short introduction to the background and the reasons for the work.

Material and methods. Sufficient experimental details must be given to enable other workers to repeat the work. The full binominal name should be given for all organisms. The International Code of Zoological Nomenclature must be strictly followed. Cite the authors of species on their first mention.

Results. These should be concise and should not include methods or discussion. Text and tables should not duplicate the same information. The abbreviations gen. n., sp. n., syn. n. and comb. n. must be used to distinguish all new taxa, synonyms or combinations. Primary types must be deposited in a museums or similar institution. In taxonomic papers the species heading should be followed by synonyms, material examined, description, distribution, and comments. All material examined should be listed in similar, compact and easily intelligible format; the information should be in the same language in the text. Sex symbols should be used rather than "male" and "female" (text file: ♂ = ♂ . ♀ = ♀).

Discussion. The should not be excessive and should not repeat results nor contain new information, but should emphasize the significance and relevance of the results reported.

References. The autor-date system (name-year system) must be used for the citation of references in the text, e.g. White & Green (1995) or (White & Green, 1995). For references with three and more authors the form Brown *et al.* (1995) or (Brown *et al.*, 1995; White *et al.*, 1996) should be used. In the text authors' names have to be written in standard type face. However, in the list of references they should be formated in SMALL CAPITALS (see below). The list of references must include all publications cited in the text and only these. References must be listed in alphabetical order of authors, in the case of several papers by the same author, the name has to be repeated for each reference. The title of the paper and the name of the journal must be given in full in the following style:

PENARD, E. 1888. Recherches sur le *Ceratium macroceros*. *Thèse, Genève*, 43 pp.

PENARD, E. 1889. Etudes sur quelques Héliozoaires d'eau douce. *Archives de Biologie* 9: 1-61.

MERTENS, R. & WERMUTH, H. 1960. Die Amphibien und Reptilien Europas. *Kramer, Frankfurt am Main*, XI + 264 pp.

HANLEY, C. O. JR 1996. Checklist of the mammals of Panama (pp. 753-795). In: WENZEL, R. L. & TIPTON, V. J. (eds). *Ectoparasites of Panama. Field Museum of Natural History, Chicago*, XII + 861 pp.

Tables. These should be self-explanatory, with the title at the top, organised to fit 122 x 180 mm.

Figures. These may be line drawings or half tones, not integrated in the text-file, and all should be numbered consecutively. Drawings and lettering should be prepared to withstand reduction to fit the page size of 122 x 170 mm. Magnification should be indicated with scale lines. Refrain from mixing drawings and half tones. Originals of figures (ink drawings, photographs, slides) should be submitted together with the revised version of the accepted manuscript. Original drawings will not be returned automatically. The *Revue suisse de Zoologie* declines responsibility for lost or damaged slides or other documents. If files of scanned figures are submitted, this should be clearly indicated on the print-out. Scanned line drawings must be saved as TIF files in bitmap mode with a resolution of at least 600 dpi. Half tone illustrations and photos must have at least 300 dpi resolution.

Legends to figures. These should be typed in numerical order on a separate sheet.

Proofs. Only page proofs are supplied, and authors may be charged for alterations (other than printer's errors) if they are numerous.

Offprints. All authors will receive a PDF file of their article, but no free offprints. Offprints may be ordered at current prices when the proofs are returned.

Correspondence. All correspondence should be addressed to:

Revue suisse de Zoologie, Muséum d'histoire naturelle, CP 6434, CH-1211 Genève 6, Switzerland.

Phone: +41 22 418 63 33 - Fax: +41 22 418 63 01. E-mail: rsz.mhn@ville-ge.ch

Home page RSZ: <http://www.ville-ge.ch/mhng/publication03.php>



3 9088 01704 8513

REVUE SUISSE DE ZOOLOGIE

Volume 120 — Number 1

Pages

LIENHARD, Charles & FERREIRA, Rodrigo L. A new species of <i>Neotrogla</i> from Brazilian caves (Psocodea: 'Psocoptera': Prionoglarididae)	3-12
RASPI, Alfio. Contribution to the knowledge of the Chamaemyiidae (Diptera) of Italy, Switzerland and some Mediterranean countries with the description of <i>Parochthiphila (Euestelia) ephesi</i> n. spec. from Turkey	13-28
PIEROTTI, Helio. Contribution to the systematic rearrangement of the west-palaearctic Peritelini (Coleoptera, Curculionidae, Entiminae). VIII. Synthesis of the knowledge up to December 31, 2010	29-81
ANLAŞ, Sinan. A new species and additional records of the genus <i>Lathrobium</i> Gravenhorst, 1802 from Palaearctic region (Coleoptera: Staphylinidae: Paederinae)	83-91
MAHNERT, Volker. Further records of cave-dwelling pseudoscorpions (Arachnida, Pseudoscorpiones) from Santorin (Thera) (Cyclades, Greece)	93-100
TANASEVITCH, Andrei V. On linyphiid spiders (Araneae) from Israel	101-124
GERMANN, Christoph. <i>Seticotasteromimus</i> gen. n. <i>jarawa</i> sp. nov. from the Andaman Islands (Coleoptera, Curculionidae)	125-129
BASSI, Graziano. Notes on some Old World Prionapterygini Landry, 1995 (Lepidoptera: Pyraloidea, Crambidae, Crambinae), with descriptions of new species	131-160
VIVIEN, Régis & LAFONT, Michel. Diversity of aquatic oligochaetes in the Geneva area (Switzerland)	161-173

Indexed in CURRENT CONTENTS, SCIENCE CITATION INDEX